SHARP SERVICE MANUAL

ATSM481044RCS

APSS
Auto Program Search System

GF-9797H/E/HB

PHOTO : GF-9797H

In the interests of user-safety the set should be restored to its original condition and only parts identical to those specified be used.

DOLBY SYSTEM ®

Noise reduction system manufactured under license from Dolby Laboratories. "Dolby" and the double-D symbol are trademarks of Dolby Laboratories.

For electrical circuits and mechanical parts of this model, it is recommendable to see GF-8H and GF-8989H service manuals.

1. "Circuitry Description": Refer to the GF-8H Service Manual (pages 8 to 12).
2. "Mechanism Adjustment": Refer to the GF-8989H Service Manual (pages 11 to 12).

Note: The difference between GF-9797H and GF-9797E will be found in specification label. With exception of this label, the other parts are of common use.
For model GF-9797HB, See Table page back, in which you can compared with this model.

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SHARP CORPORATION OSAKA, JAPAN

SPECIFICATIONS

Power source:	AC 110 ~ 120 V/220 ~ 240 V, 50/60 Hz DC 15 V (10 x UM/SUM-1 or R20) DC 3 V (2 x UM/SUM-3 or R 6) balleries for micro processor
Speakers:	16 cm (Woofer) x 2 3 cm (Tweeter) x 2
Output power: (DIN 45 324)	MPO; 18000 mW (9000 mW + 9000 mW) on AC RMS; 14000 mW (7000 mW + 7000 mW) on DC
Semiconductors:	14 IC's 47 transistors 47 diodes 6 LED's 1 LED array
Dimensions:	
Width;	510 mm (20")
Depth;	125 mm (4 7/8")
Height;	284 mm (11 1/4")
Weight:	6.2 kg (13.7 lbs) without batteries

TAPE RECORDER

Tape:	Phillips-type compact cassette tape
Frequency respones:	40 ~ 16000 using Metal tape
Signal/Noise ratio:	60 dB (with Dolby)
Wow and flutter:	0.17% (DIN 45 511)
Input sensitivity and input impedance:	
External mic;	600 ohms
Mixing mic;	600 ohms
Record/Playback Socket;	0.7 mV/4.3K ohms
Output level and loading impedance:	
Headphones;	8 ohms ~ 25 ohms
External speakers;	3.2 ohms ~ 8 ohms
Record/Playback Socket;	0.65 V/50K ohms

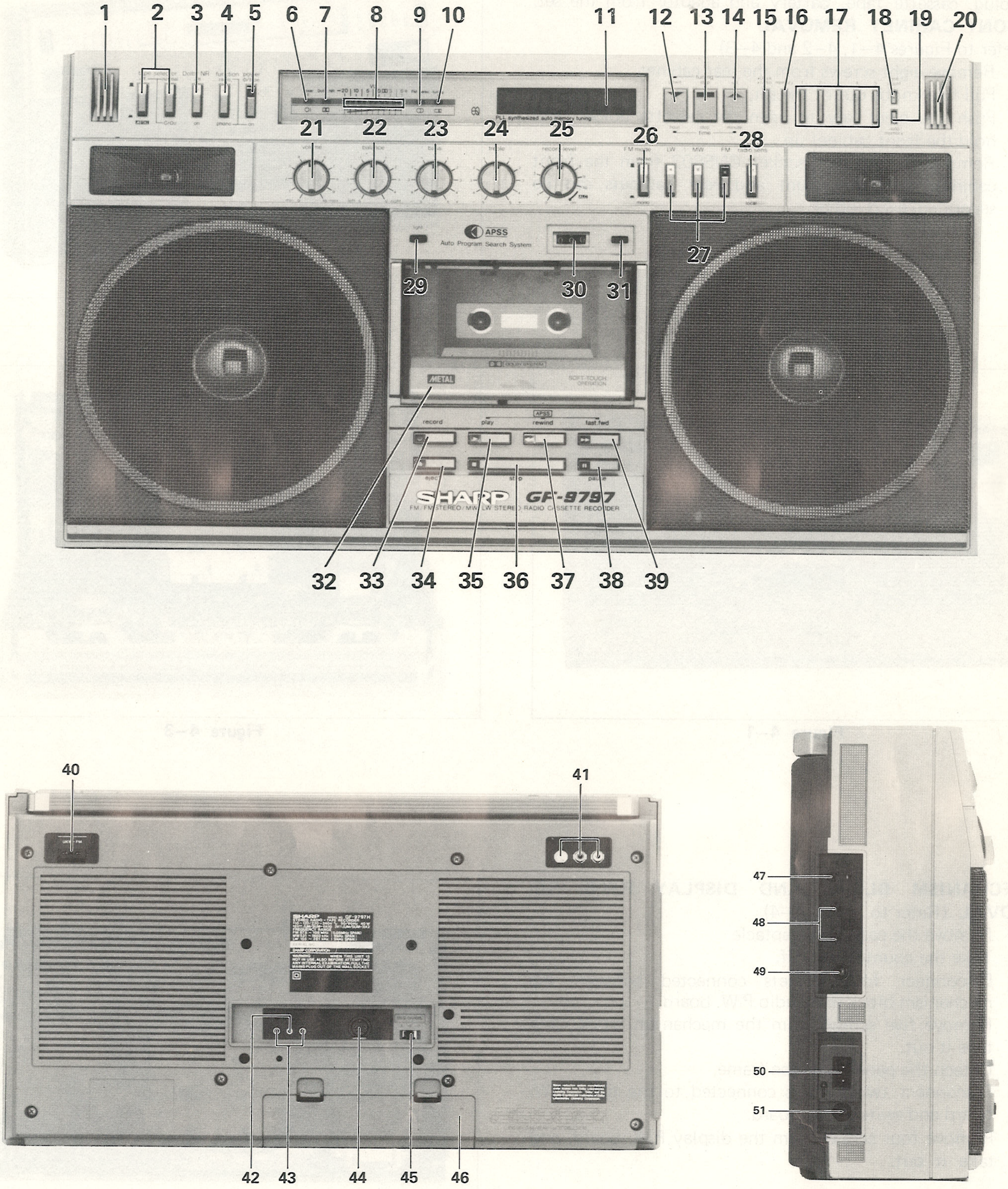
RADIO

Frequency range:	LW;	155 kHz ~ 281 kHz
	MW;	531 kHz ~ 1602 kHz
	FM;	87.5 MHz ~ 108 MHz

Sharp reserves the right to make design and specification changes for product improvement.

MANES OF PARTS

1. Built-in Microphone (L-ch)
2. Tape Selector
3. Dolby NR
4. Function Selector
5. Power ON/Tape Selector
6. Power ON/Battery Level Indicator
7. Dolby NR Indicator
8. Level Indicator
9. FM Stereo Indicator
10. Tuning Indicator
11. LCD
12. Down/Hour Button
13. Time Adjustment/APMS/Station Scanning Stop Button
14. Up/Minute Button
15. Clock/Radio Button
16. Memory Button
17. Preset Memory Tuning Button
18. Time Adjust Button
19. Auto Memory Button
20. Built-in Microphone (R-ch)
21. Volume Control
22. Balance Control
23. Bass Control
24. Treble Control
25. Record Level Control
26. FM Mode Selector
27. Band Selector (LW/MW/FM)
28. Radio Sensitivity Selector (DX/Local)
29. LCD Illumination Light Switch
30. Digtal Tape Counter
31. Tape Counter Reset Button
32. Cassette Holder
33. Record Button
34. Eject Button
35. Playback Button
36. Stop Button
37. Rewind/Review/Reverse APSS Button
38. Pause Button
39. Fast-forward/Cue/Forward APSS Button
40. FM External Antenna
41. Record Player Input Socket and Earthing Terminal
42. Remote Control Socket
43. External Microphone Socket
44. DIN Type, Record/Playback (AMP) Socket
45. Beat Cancel Switch
46. Battery Compartment Lid
47. Mixing Microphone Socket
48. External Speaker Socket
49. Headphones Socket
50. AC Power Supply Socket
51. External DC Power Supply Socket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32
33
34
35
36
37
38
39
40
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44
45
46
47
48
49
50
51
SHARP
GF-9797
APSS
Auto Program Search System
METAL
record
play
rewind
fast fwd
eject
stop
pause
FM/FM STEREO/MW/LW STEREO RADIO CASSETTE RECORDER
PLL synthesized auto memory tuning

Figure 3

DISASSEMBLY

Caution:
Prior to the disassembly, be sure to remove the power supply cord plug, cassette tape, battery and adaptor from the set.

■ FRONT CABINET REMOVAL

(Refer to Figures 4–1, 4–2 and 4–3)

(1) Remove eight screws from the rear cabinet.
(2) Pull five knobs out of the set.
(3) Push the eject key to open the cassette holder, and hold the front cabinet up.
(4) Remove the speaker socket CNS803 from the front cabinet, then the front and rear cabinets can be separated each other.

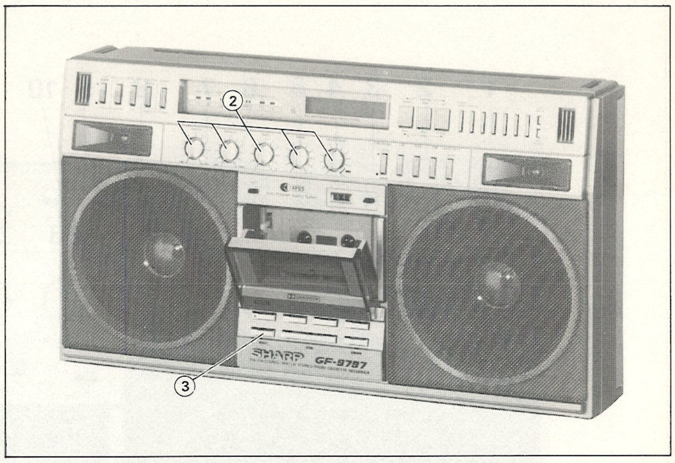


Figure 4–2

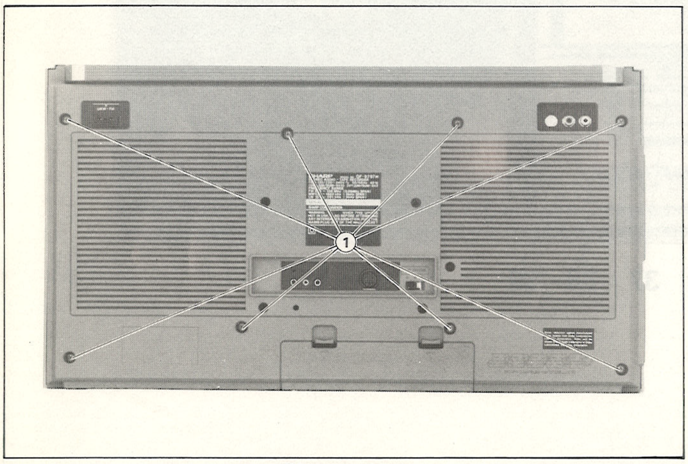


Figure 4–1

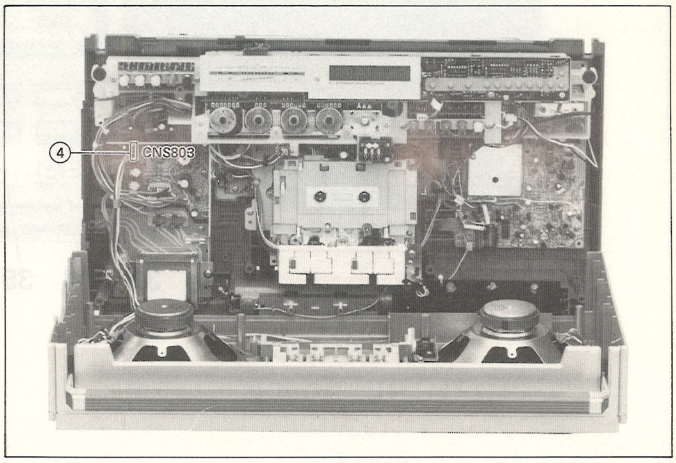


Figure 4–3

■ MECHANISM BLOCK AND DISPLAY P.W.B. REMOVAL

(Refer to Figure 4–4)

(1) Remove the cassette receptacle.
(2) Take the counter belt off.
(3) Disconnect four sockets connected between the mechanism block and audio P.W. board.
(4) Remove five screws from the mechanism block, then take it out.
(5) Detach the panel from the frame.
(6) Disconnect two sockets connected to the tuner P.W. board and switch P.W. board.
(7) Remove four screws from the display P.W. board, and take it out.

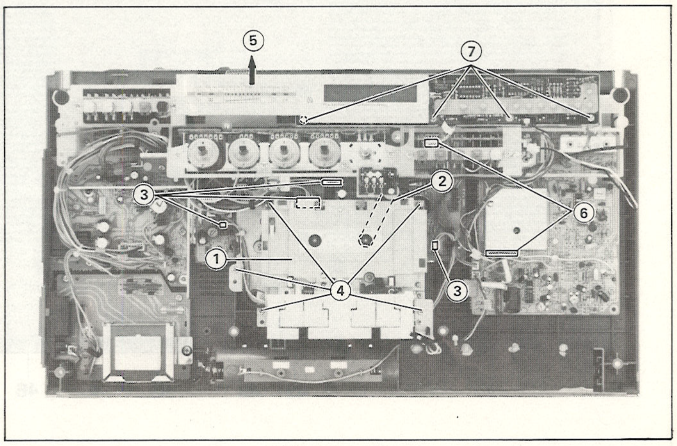


Figure 4–4

- **REMOVAL OF AUDIO, TUNER AND POWER P.W. BOARDS** (Refer to Figures 5–1, 5–2 and 5–3)

(1) Disconnect one socket from the power P.W. board.
(2) Disconnect two sockets from the tuner P.W. board, one antenna socket from the switch P.W. board, and one socket from the Audio P.W. board.
(3) Unsolder the earth lead located at the MW/LW tuner unit.
(4) Remove two screws at the frame.
(5) Remove 16 screws from the three P.W. boards, then the P.W. boards and frame can be separated from the cabinet.
(6) Remove four claws from the tuner P.W. board, and take it out.
(7) Remove three screws from the audio P.W. board. Then the audio P.W. board and volume control P.W. board can be taken out.

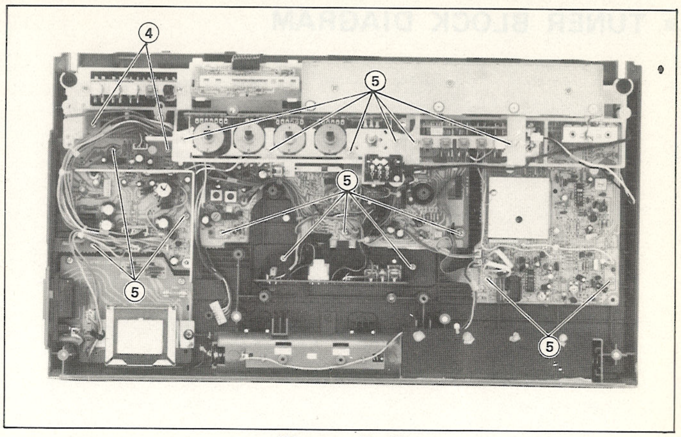


Figure 5–2

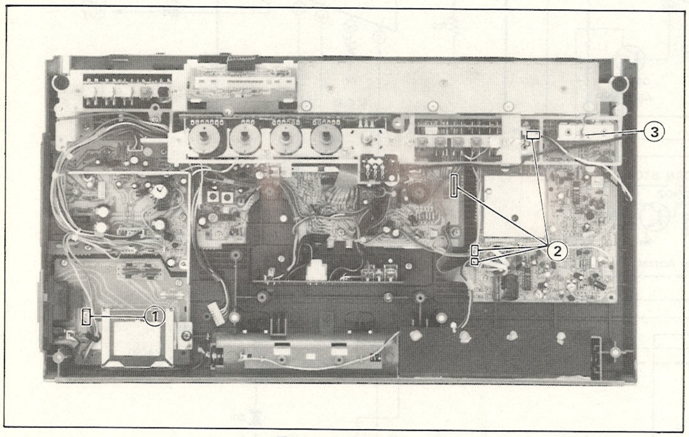


Figure 5–1

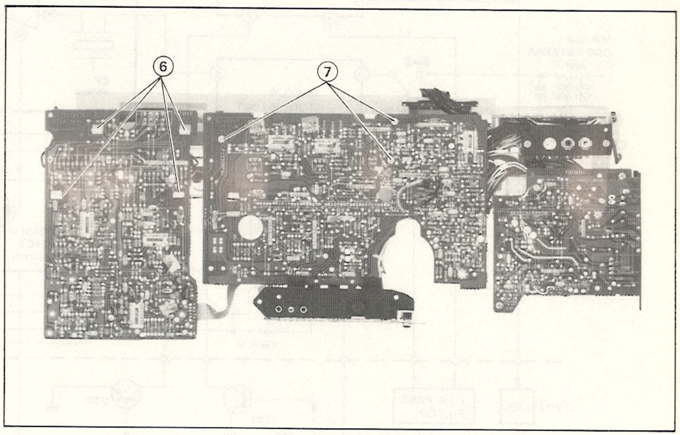


Figure 5–3

VOLTAGE SELECTION

Before operating the unit on mains, check the preset voltage. If the voltage is different form your local voltage, adjust the voltage as follows: Slide the AC power supply socket cover by a little loosing two screws to the visible indication of the side of your local voltage. See Figure 5–4.

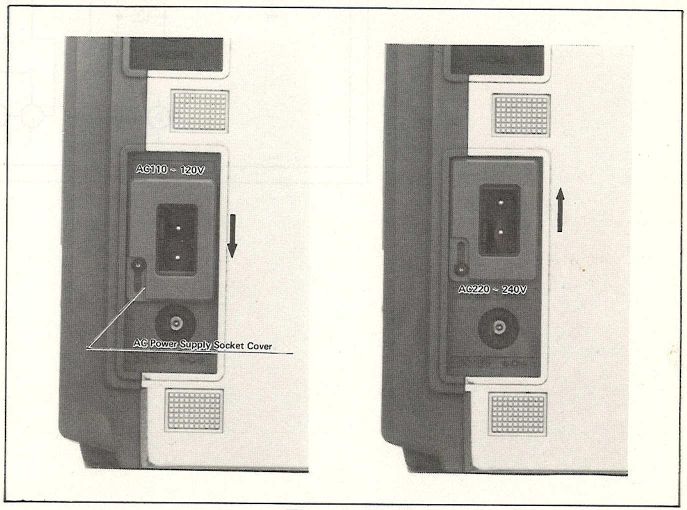


Figure 5–4

■ TUNER BLOCK DIAGRAM

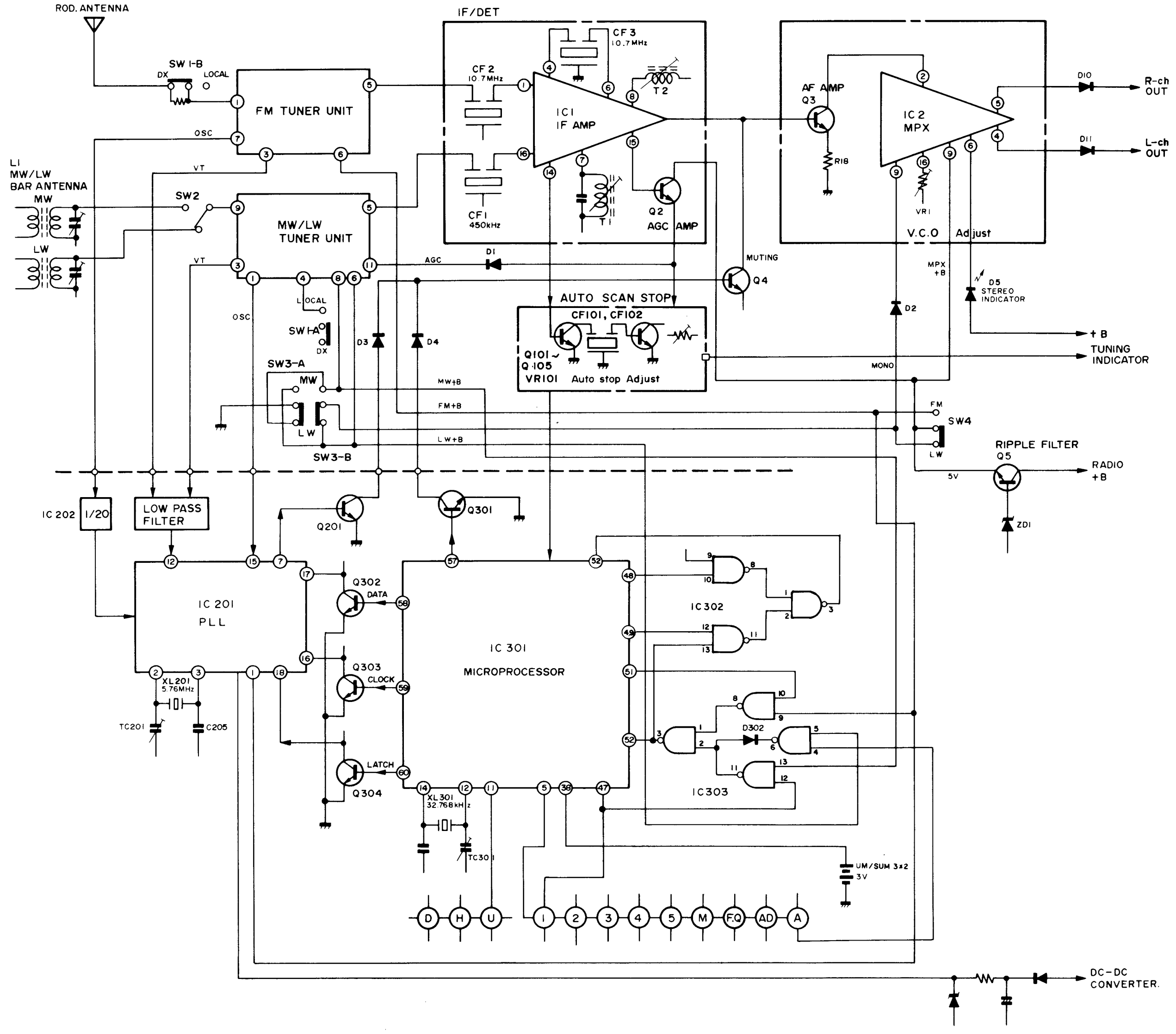
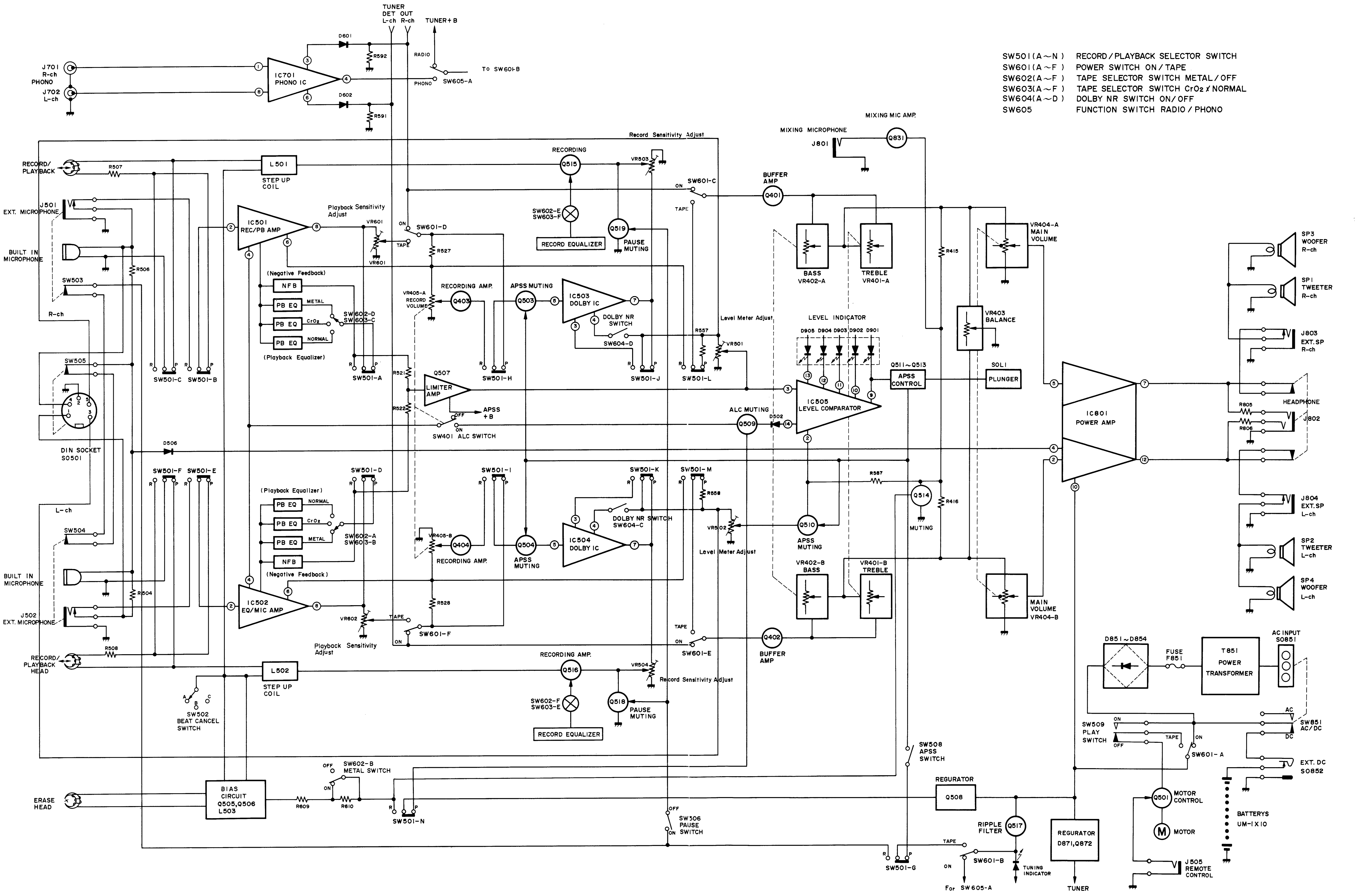

ROD. ANTENNA
SW I-B
DX
LOCAL
FM TUNER UNIT
OSC
VT
L1
MW/LW
BAR ANTENNA
MW
LW
SW2
MW/LW
TUNER UNIT
LOCAL
SW1-A
DX
SW3-A
SW3-B
D3
D4
MW+B
FM+B
LW+B
IF/DET
CF 2
10.7MHz
CF1
450kHz
CF 3
10.7MHz
IC1
IF AMP
T2
T1
Q2
AGC AMP
AGC
D1
AUTO SCAN STOP
CF101, CF102
Q101 ~ Q105
VR101
Auto stop Adjust
MUTING
Q4
AF AMP
Q3
R18
IC 2
MPX
VR1
V.C.O Adjust
D10
D11
R-ch OUT
L-ch OUT
MPX +B
D5
STEREO INDICATOR
D2
+B
TUNING INDICATOR
MONO
FM
SW4
LW
RIPPLE FILTER
Q5
5V
RADIO +B
ZD1
IC 202
1/20
LOW PASS FILTER
Q201
Q301
IC 201
PLL
XL201
5.76MHz
TC201
C205
Q302
DATA
Q303
CLOCK
Q304
LATCH
IC 301
MICROPROCESSOR
XL301
32.768kHz
TC301
IC302
IC303
D302
UM/SUM 3×2
3V
D
H
U
1
2
3
4
5
M
FQ
AD
A
DC-DC CONVERTER.

Figure 6

▪ AUDIO BLOCK DIAGRAM



SW501(A~N)	RECORD/PLAYBACK SELECTOR SWITCH
SW601(A~F)	POWER SWITCH ON/TAPE
SW602(A~F)	TAPE SELECTOR SWITCH METAL/OFF
SW603(A~F)	TAPE SELECTOR SWITCH CrO₂/NORMAL
SW604(A~D)	DOLBY NR SWITCH ON/OFF
SW605	FUNCTION SWITCH RADIO/PHONO

TUNER DET OUT L-ch R-ch
TUNER+B
J701 R-ch PHONO
J702 L-ch
D601
D602
R592
R591
IC701 PHONO IC
RADIO
PHONO
SW605-A
To SW601-B
MIXING MIC AMP
MIXING MICROPHONE
J801
Q831
Record Sensitivity Adjust
RECORD/PLAYBACK
R507
L501 STEP UP COIL
RECORDING
Q515
VR503
SW601-C
ON
TAPE
BUFFER AMP
Q401
J501 EXT. MICROPHONE
BUILT IN MICROPHONE
R506
SW503
R-ch
IC501 REC/PB AMP
Playback Sensitivity Adjust
VR601
SW601-D
R527
SW602-E SW603-F
RECORD EQUALIZER
Q519
PAUSE MUTING
BASS VR402-A
TREBLE VR401-A
R415
VR404-A MAIN VOLUME
SP3 WOOFER R-ch
SP1 TWEETER R-ch
(Negative Feedback)
NFB
PB EQ
METAL
CrO₂
NORMAL
SW602-D SW603-C
(Playback Equalizer)
VR405-A RECORD VOLUME
RECORDING AMP.
Q403
APSS MUTING
Q503
IC503 DOLBY IC
DOLBY NR SWITCH
SW604-D
Level Meter Adjust
R557
VR501
LEVEL INDICATOR
D905 D904 D903 D902 D901
VR403 BALANCE
J803 EXT.SP R-ch
SW505
SW501-C
SW501-B
SW501-A
SW501-H
SW501-J
SW501-L
Q511~Q513 APSS CONTROL
SOL1 PLUNGER
R521
Q507 LIMITER AMP
APSS +B
R522
OFF
ON
SW401 ALC SWITCH
ALC MUTING
Q509
D502
IC505 LEVEL COMPARATOR
IC801 POWER AMP
HEADPHONE
R805
R806
J802
DIN SOCKET S0501
D506
SW501-F
SW501-E
SW501-D
SW501-I
SW501-K
SW501-M
R587
Q514
MUTING
R416
R588
J804 EXT.SP L-ch
L-ch
SW504
VR405-B
Q404
Q504
IC504 DOLBY IC
DOLBY NR SWITCH SW604-C
VR502
Q510
APSS MUTING
SW602-A SW603-B
SP2 TWEETER L-ch
BUILT IN MICROPHONE
R504
IC502 EQ/MIC AMP
R528
VR402-B BASS
VR401-B TREBLE
SP4 WOOFER L-ch
J502 EXT. MICROPHONE
VR602
SW601-F
SW601-E
Q402
MAIN VOLUME VR404-B
R508
RECORD/PLAYBACK HEAD
L502 STEP UP COIL
Q516
VR504
Q518
SW602-F SW603-E
D851~D854
FUSE F851
T851 POWER TRANSFORMER
AC INPUT S0851
SW502 BEAT CANCEL SWITCH
SW508 APSS SWITCH
SW509 PLAY SWITCH
SW601-A
SW851 AC/DC
AC
DC
EXT. DC S0852
ERASE HEAD
BIAS CIRCUIT Q505,Q506 L503
SW602-B METAL SWITCH
R609
R610
SW501-N
SW306 PAUSE SWITCH
REGURATOR
Q508
RIPPLE FILTER
Q517
REGURATOR D871,D872
Q501 MOTOR CONTROL
MOTOR
BATTERYS UM-1X10
SW501-G
SW601-B
TUNING INDICATOR
For SW605-A
TUNER
J505 REMOTE CONTROL

Figure 7

CIRCUITRY DESCRIPTION

- **AUTO STOP (Automatic Scanning Stop) CIRCUIT**

(Refer for Figures 9–1 and 9–2)
The scan mute line keeps high level when the set is in the auto scan mode, so that bias voltage is applied via R102 to the amplifier Q101. At the same time, AM IF signal (or FM IF signal) is delivered via R101 (or C101) to the Q101 where it is amplified to arrive at the 10.7 MHz narrow filter CF101 or the 450 kHz filter CF102. After passing the filter, the output signal becomes 10.7 MHz (AM) or 450 kHz (FM) to be applied to the amplifier Q102. Then the amplified signal is detected by D101, D102 and C110 to turn off Q103. With the Q103 turned off, its collector voltage changes from 0 V to about 3 V, and this "high" level signal is applied to the microcomputer, which then makes the set stop the auto scan operation.

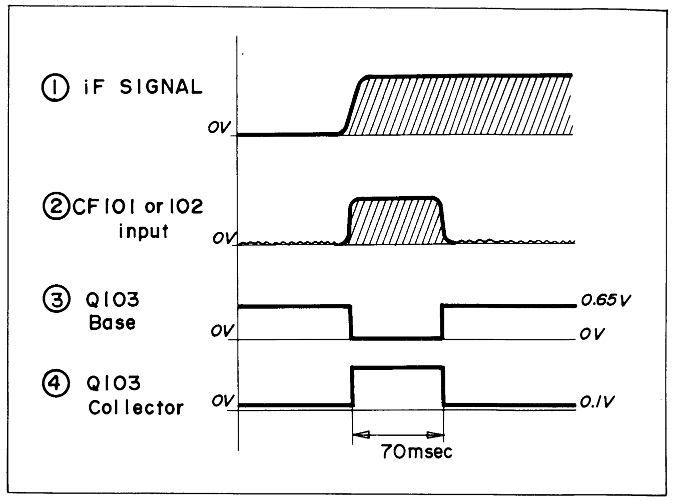


Figure 9—1

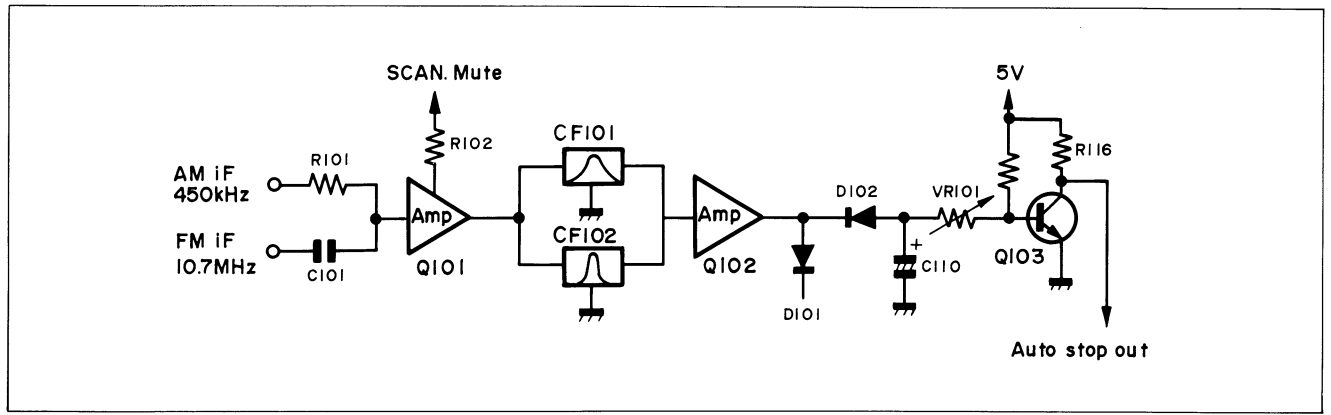

SCAN. Mute
5V
R102
R101
AM iF 450kHz
FM IF 10.7MHz
C101
Amp
Q101
CF101
CF102
Amp
Q102
D102
D101
VR101
C110
Q103
R116
Auto stop out

Figure 9—2

EXPLANATIONS OF APSS AND ALC

- **APSS (Auto Program Search System)**

1. The signal coming from the head is boosted first by the equalizer (IC501, 502) amplified and next by the level amplifier Q507, then it enters pin ③ of the level comparator (IC505).
2. The level comparator works to make the LEDs D901 ∼ 905 light according to a variety of the input level, which is shown:

LED No.	D901	D902	D903	D904	D905
Level (dB)	–13	–8	–3	0	+3

The unit is designed to provide VU indication for both the tape playback mode and the radio reception mode, and that indication is allowed in the APSS mode via the said level comparator function, the feature of which is here explained:
Even if the recording level of a tape is relatively low (–30 dB), it is boosted by the level amplifier (Q507) to permit the VU indication – in this case, the D901 can light assuming that the recording level is within the range of –30 dB to –40 dB. When the programs space si reached in playback, no voltage is applied to the D901 for it not to light at all.

3. For the non-signal recorded part which exists for not more than 0.5 second, it shall not be mistaken as the programs space, and this is made possible via the time constant assured by the capacitors (C581, C584) and resistors (R577, R578).

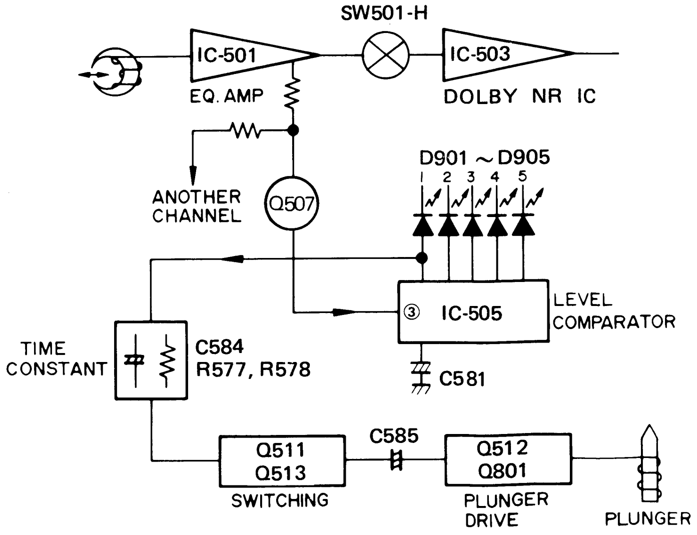

SW501-H
IC-501
EQ. AMP
IC-503
DOLBY NR IC
D901 ∼ D905
1 2 3 4 5
ANOTHER CHANNEL
Q507
③ IC-505
LEVEL COMPARATOR
TIME CONSTANT
C584
R577, R578
C581
Q511
Q513
SWITCHING
C585
Q512
Q801
PLUNGER DRIVE
PLUNGER

Figure 9—3

4. When the APSS switch is placed at ON, the transistor Q513 of the APSS circuit first turns on, and then the operation goes on as follows:
   1) When the unit is in the playback mode with the APSS switch kept off, the Q511 and Q513 remain off – though the C585 is charged (shown in Figure 10–1), so that both the Q512 and the plunger be off.
   2) The Q511 turns on or off according to whether or not a voltage is present at the D901 (see Step 2), and this is summed up.

Recorded program	Voltage at D901	Q511
Absent	Absent	OFF
Present	Present	ON

   3) The APSS switch is pushed on just when the programs space (non-signal recorded part) is being traced in playback.
   Here, the Q511 is kept off (see Figure 10–2), and assuming the charging of C585 is not yet completed, the Q512 turns on to permit the timer standby mode. If the tape advances to the signal recorded part, the Q511 turns on and the C585 discharges (see Figure 10–3). Then, if the tape reaches the programs space, the Q511 turns off, a current is caused at the C585, the Q512 turns on, and the plunger is activated (see Figure 10–4).
   4) The APSS switch is pushed on just when the signal (program) recorded part is being traced in playback. The Q511 turns on (Figure 10–3), and if the programs space is reached, the plunger will be on as shown in Figure 10–4.
   5) Besides with the APSS switch on, the Q503 and Q504 turns on to stop (mute) the VU signal coming from the power amplifier IC801.

- **ALC (Automatic Level Control)**

The ALC feature is provided by the level comparator IC505. DC voltage at pin ⑭ of the IC505 varies – in a linear form – according to the strength of input, and the resultant voltage is applied to pin ④ of the record/playback amplifier (IC501, 505).

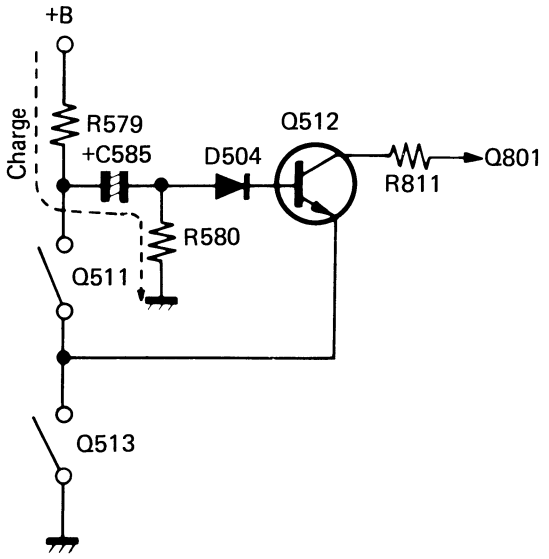

+B
Charge
R579
+C585
D504
Q512
R811
Q801
R580
Q511
Q513

Figure 10–1

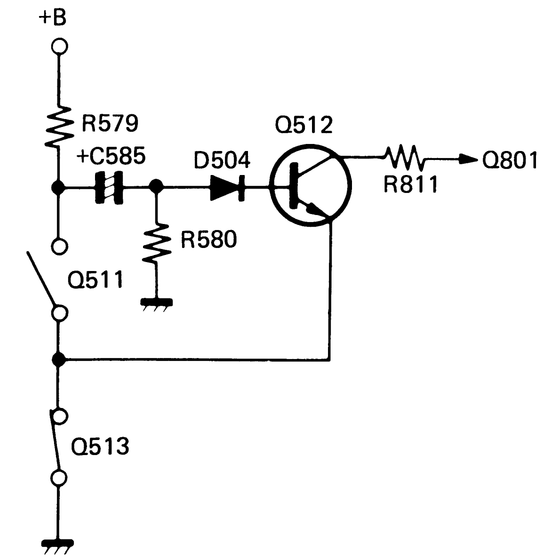

+B
R579
+C585
D504
Q512
R811
Q801
R580
Q511
Q513

Figure 10–2

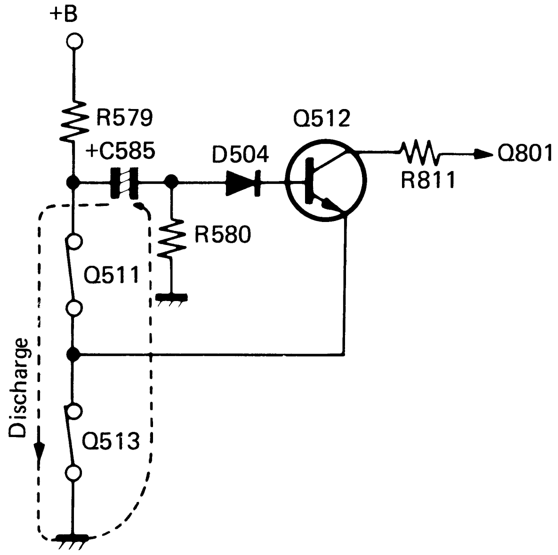

+B
R579
+C585
D504
Q512
R811
Q801
R580
Q511
Discharge
Q513

Figure 10–3

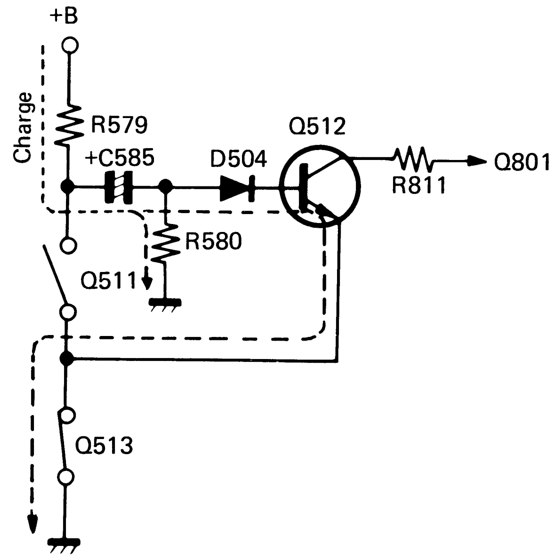

+B
Charge
R579
+C585
D504
Q512
R811
Q801
R580
Q511
Q513

Figure 10–4

■ ADJUSTMENT POINTS

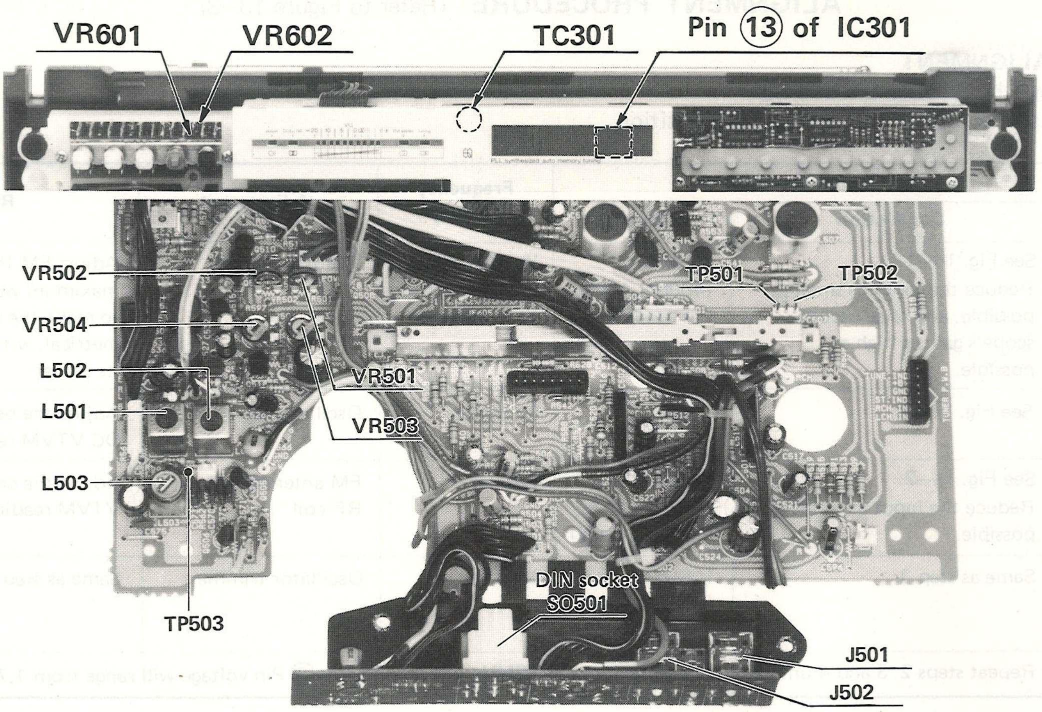

VR601
VR602
TC301
Pin ⑬ of IC301
VR502
VR504
L502
L501
L503
TP503
VR501
VR503
TP501
TP502
DIN socket
SO501
J501
J502

Figure 11–1

ELECTRICAL MEASUREMENT (Refer to Figure 11–1)

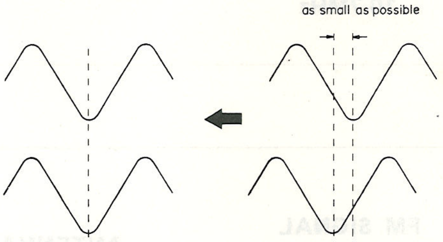
*Set the Function selector switch (SW601) to the TAPE position.

■ RECORD/PLAYBACK HEAD AZIMUTH ADJUSTMENT

(Refer to Figure 11–2)

1. Connect load resistor (3.2 ohm, 5 W, ±5%) to the EXT. SP sockets (J803, J804) and connect outputs of both the right and left channels to the channel 1 and channel 2 input terminals of oscilloscope.
2. Insert the test tape (MTT-114, 10 kHz, −10 dB Recorded).
3. Set the Dolby NR switch (SW604) to the OFF position and Tape Selector switch (SW602, SW603) to the Normal position.
4. Place the unit in PLAYBACK Mode.
5. Adjust the head azimuth adjusting screw so that sine waveform attains the maximum and the same phase in right and left.
6. Even without using the oscilloscope, also adjust the head azimuth adjusting screw so that outputs of both the right and left channels attain the maximum and the same phase in right and left.

Note:
For some heads, there may be a phase difference between right and left channels when the output is made maximum. In this case, adjust the head azimuth so that such phase difference will be as small as possible while keeping the output still maximum.


as small as possible

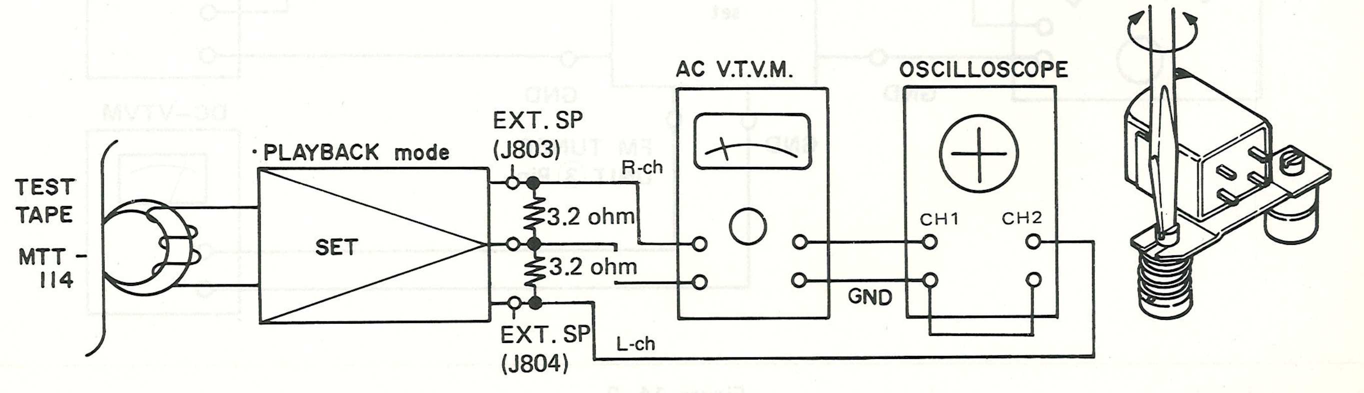

TEST TAPE
MTT - 114
• PLAYBACK mode
SET
EXT. SP (J803)
R-ch
3.2 ohm
3.2 ohm
EXT. SP (J804)
L-ch
AC V.T.V.M.
OSCILLOSCOPE
CH1
CH2
GND

Figure 11–2

■ ADJUSTMENT POINTS

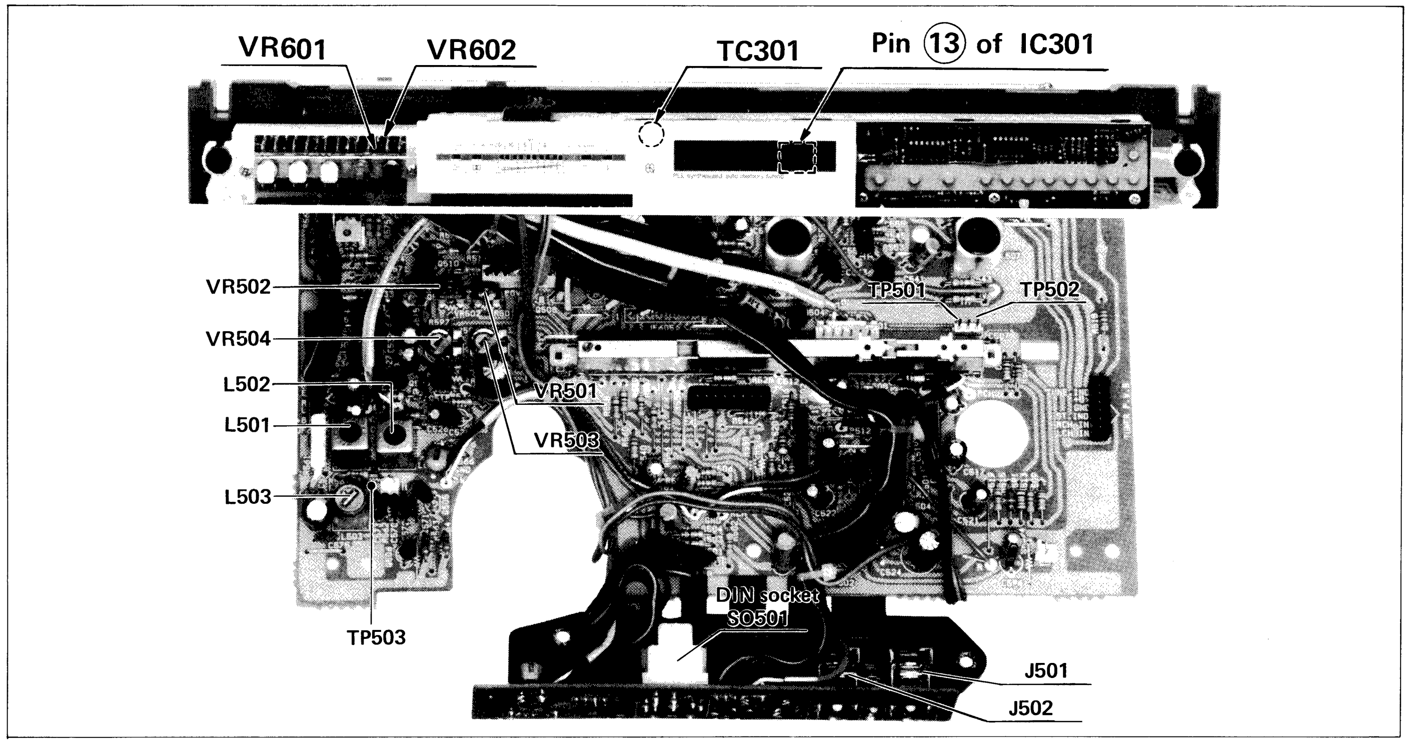

VR601
VR602
TC301
Pin ⑬ of IC301
VR502
VR504
L502
L501
L503
TP503
TP501
TP502
VR501
VR503
DIN socket
SO501
J501
J502

Figure 11–1

ELECTRICAL MEASUREMENT (Refer to Figure 11–1)

*Set the Function selector switch (SW601) to the TAPE position.

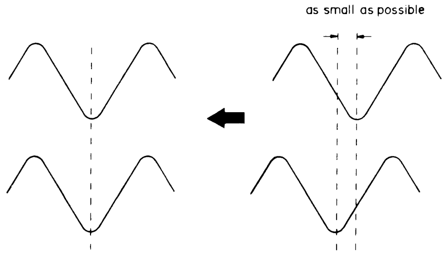
■ RECORD/PLAYBACK HEAD AZIMUTH ADJUSTMENT

(Refer to Figure 11–2)

1. Connect load resistor (3.2 ohm, 5 W, ±5%) to the EXT. SP sockets (J803, J804) and connect outputs of both the right and left channels to the channel 1 and channel 2 input terminals of oscilloscope.
2. Insert the test tape (MTT-114, 10 kHz, −10 dB Recorded).
3. Set the Dolby NR switch (SW604) to the OFF position and Tape Selector switch (SW602, SW603) to the Normal position.
4. Place the unit in PLAYBACK Mode.
5. Adjust the head azimuth adjusting screw so that sine waveform attains the maximum and the same phase in right and left.
6. Even without using the oscilloscope, also adjust the head azimuth adjusting screw so that outputs of both the right and left channels attain the maximum and the same phase in right and left.

Note:

For some heads, there may be a phase difference between right and left channels when the output is made maximum. In this case, adjust the head azimuth so that such phase difference will be as small as possible while keeping the output still maximum.


as small as possible

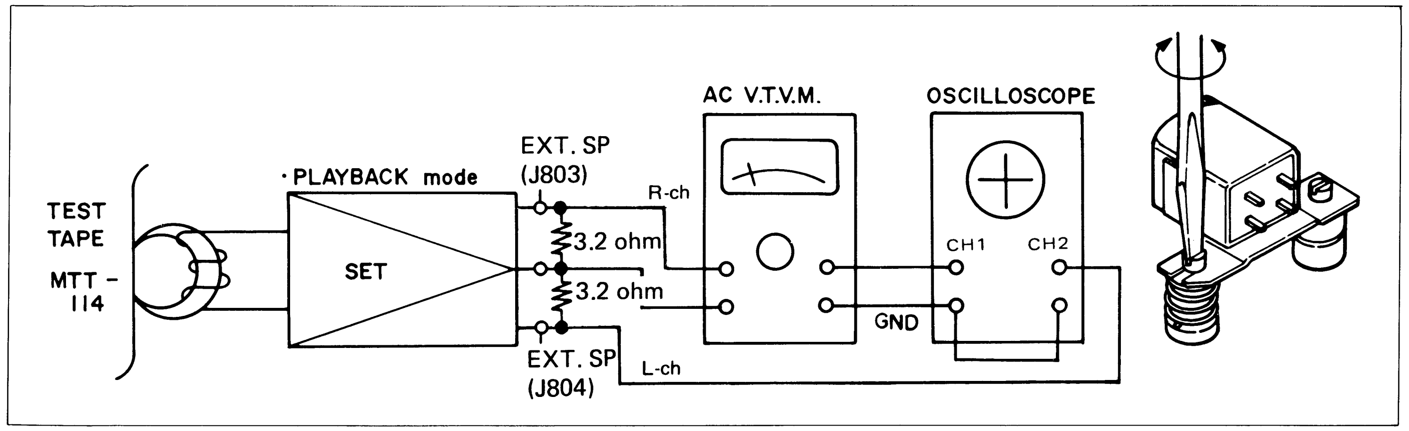

TEST TAPE
MTT - 114
·PLAYBACK mode
SET
EXT. SP
(J803)
R-ch
3.2 ohm
3.2 ohm
EXT. SP
(J804)
L-ch
AC V.T.V.M.
OSCILLOSCOPE
CH1
CH2
GND

Figure 11–2

■ PLAYBACK SENSITIVITY ADJUSTMENT

(Refer to Figure 12–1)

1. Connect V.T.V.M. between pin ③ (or ⑤) of DIN socket and ground.
2. Insert the test tape (MTT-150: 400 Hz, 200 pWb/mm recorded).
3. Set the Dolby NR switch SW604 to the off position and Tape Selector switch (SW602, SW603) to the Normal position.
4. Adjust the semi-variable resistor VR601 (or VR602) so that V.T.V.M. reading becomes 580 mV.

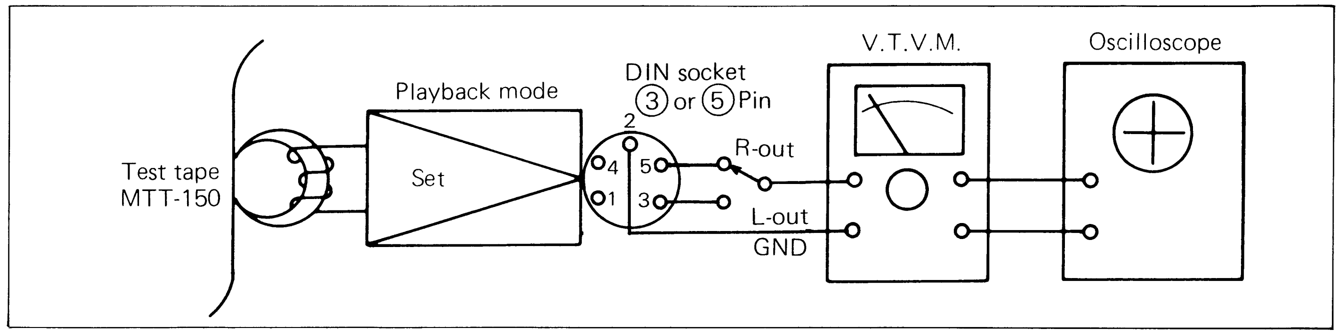

Test tape
MTT-150
Playback mode
Set
DIN socket
③ or ⑤ Pin
2
4
5
1
3
R-out
L-out
GND
V.T.V.M.
Oscilloscope

Figure 12–1

■ RECORD/PALYBACK SENSITIVITY ADJUSTMENT

(Refer to Figure 12–2)

1. Insert the normal (non-recorded) tape into the set.
2. Connect CR oscillator to the microphone jack J501 (or J502), and apply signal (1 kHz, −60 dB) to the set.
3. Place the set in Record mode.
4. Adjust the record level control VR405A (or VR 405B) so that the 8th LED of the level meter will light up.
5. Reproduce the tape recorded in steps 3 and 4.
6. Adjust the semi-variable resistor VR503 (or VR504) so that the 8th LED of the level meter will light up.

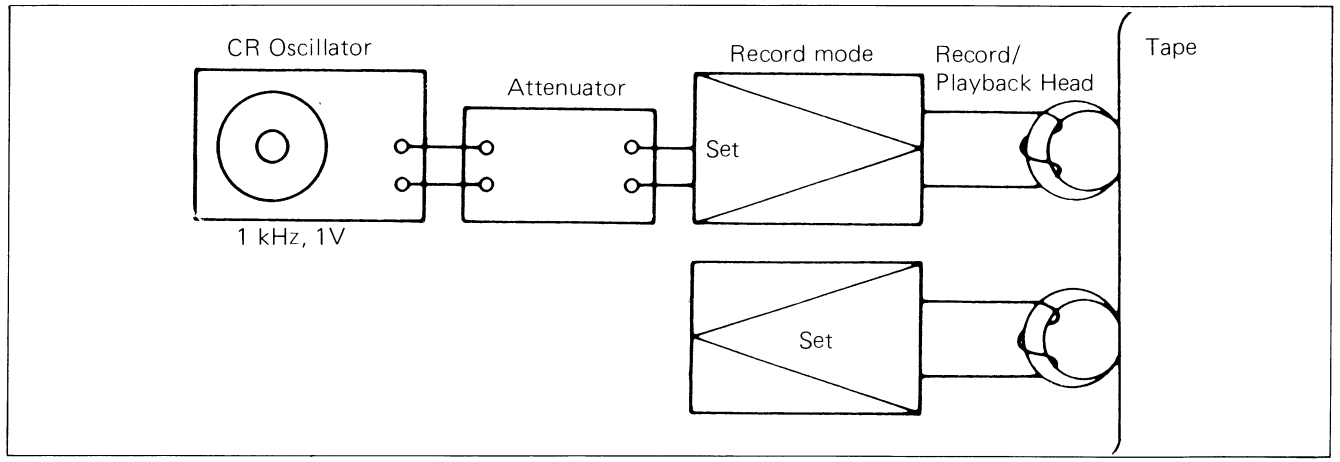

CR Oscillator
1 kHz, 1V
Attenuator
Record mode
Set
Record/
Playback Head
Tape
Set

Figure 12–2

■ DISPLAY ADJUSTMENT OF RECORD/PLAYBACK LEVEL METER (Refer to Figure 12–3)

1. Connect V.T.V.M. between pin ③ (or ⑤) of DIN socket and ground.
2. Connect CR oscillator to the microphone jack J501 (or J502), and apply signal (1 kHz, −60 dB) to the set.
3. Place the set in Record mode, and adjust the record level control VR405A (or VR405B) so that V.T.V.M. will indicate 580 mV.
4. Adjust the sensitivity adjustment control VR501 (or VR502) so that the 8th LED of the level meter will light up.

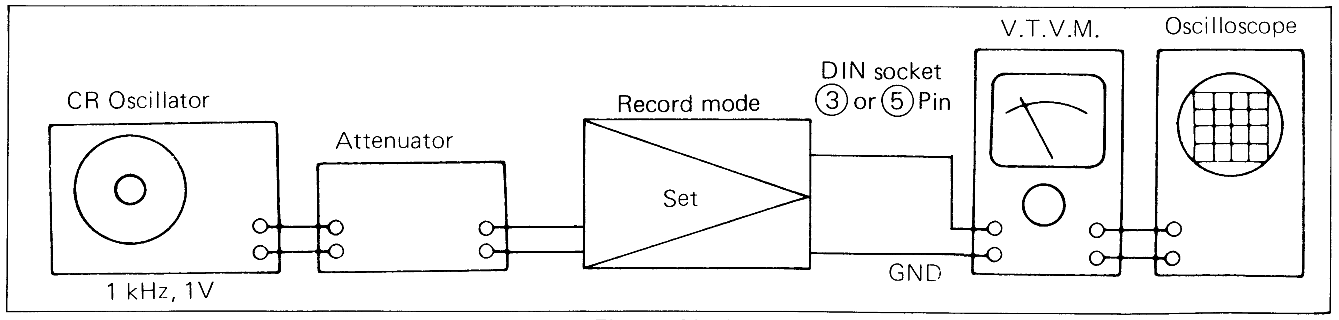

CR Oscillator
1 kHz, 1V
Attenuator
Record mode
Set
DIN socket
③ or ⑤ Pin
GND
V.T.V.M.
Oscilloscope

Figure 12–3

■ RECORD AMPLIFIER BIAS OSCILLATOR ADJUSTMENT (Refer to Figure 13–1)

1. Connect V.T.V.M. across a 100 ohm resistor R507 (or R508).
2. Set the Tape Selector switch (SW602, SW603) to the Normal position.
3. Place the set in Record mode and the Beat Canceller switch (SW502) to A position.
4. Adjust the Bias Step up Coil L501 (or L502) so that the V.T.V.M. readings becomes 52 mV.
5. Set the Tape Selector switch (SW602) to the Metal position.
6. Make sure the V.T.V.M. readings are 95 ± 6 mV.

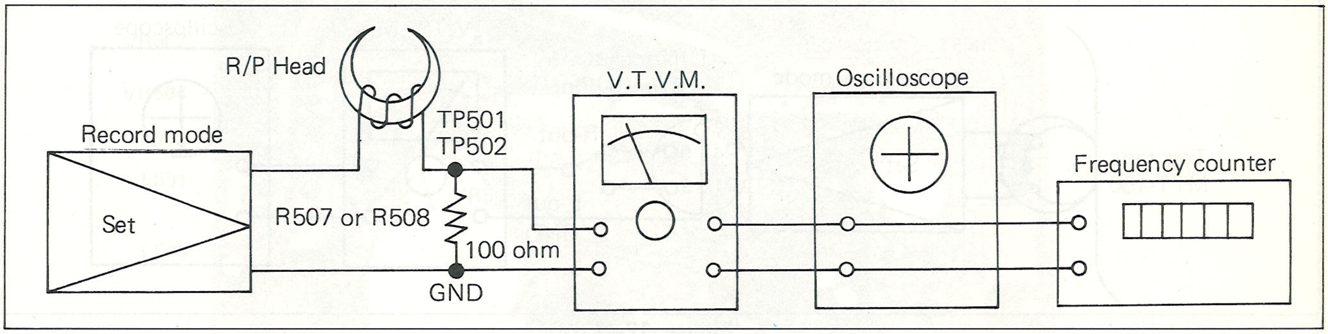

R/P Head
Record mode
Set
TP501
TP502
R507 or R508
100 ohm
GND
V.T.V.M.
Oscilloscope
Frequency counter

Figure 13–1

■ ERASE CURRENT CHECK (Refer to Figure 13–2)

1. Connect V.T.V.M. across a 1 ohm resistor R599.
2. Set the Tape Selector switch (SW602, SW603) to the Normal position.
3. Place the set in Record mode.
4. Make sure the erase current range is 50 ~ 70 mA. (50 ~ 70 mV)
5. Set the Tape Selector switch SW602 to the Metal position.
6. Make sure the erase current range is 110 ~ 130 mA. (110 ~ 130 mV) and record oscillator bias frequency range is 86 ± 3 kHz.
7. If the record oscillator bias frequency range is not 86 ±3 kHz, adjust the coil L503.

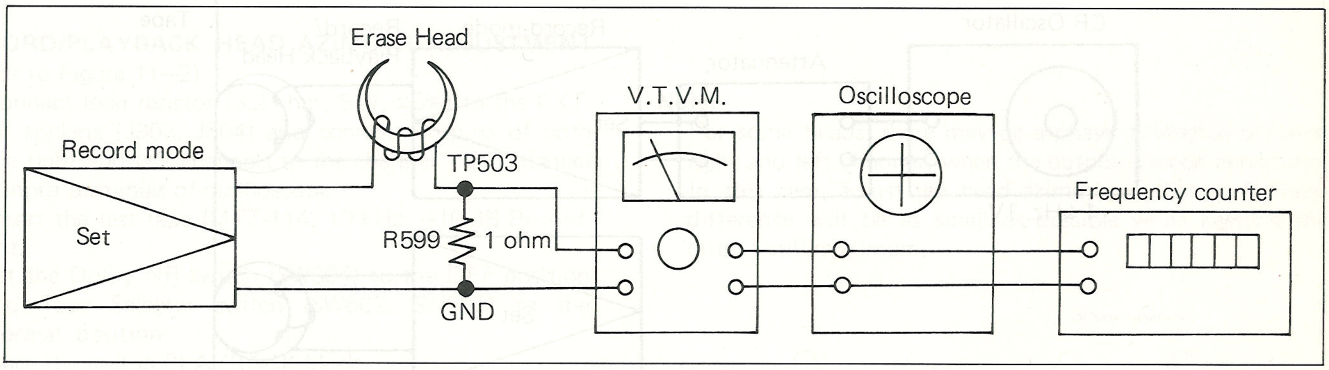

Erase Head
Record mode
Set
TP503
R599
1 ohm
GND
V.T.V.M.
Oscilloscope
Frequency counter

Figure 13–2

■ ADJUSTMENT POINTS

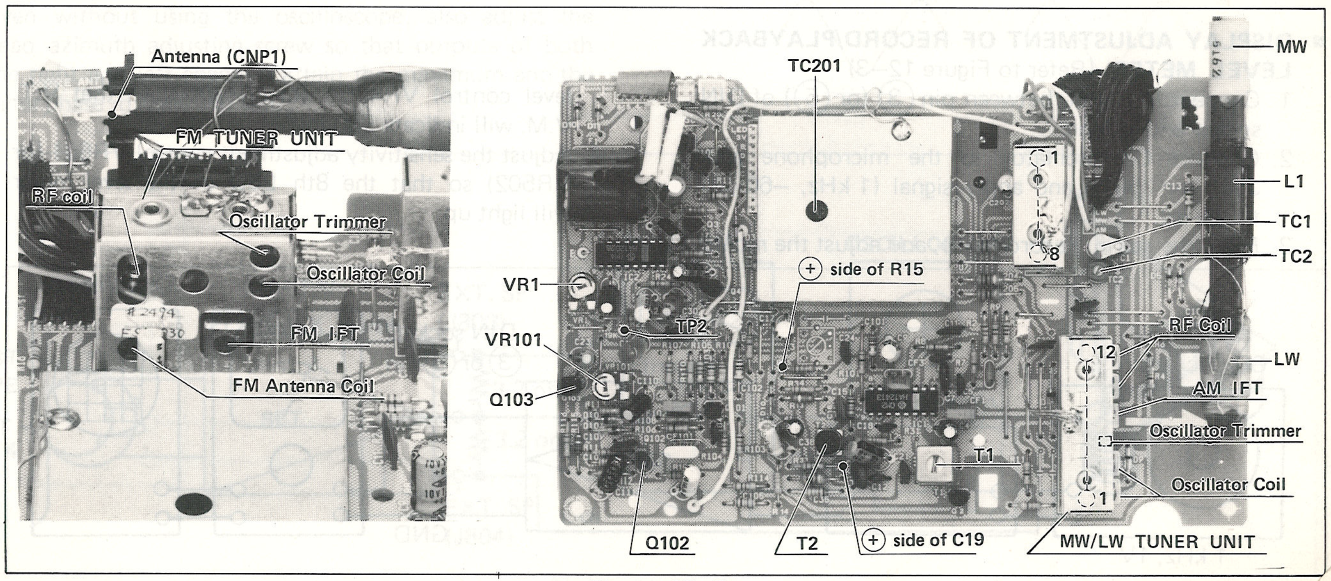

Antenna (CNP1)
FM TUNER UNIT
RF coil
Oscillator Trimmer
Oscillator Coil
FM IFT
FM Antenna Coil
TC201
VR1
VR101
Q103
⊕ side of R15
TP2
Q102
T2
⊕ side of C19
T1
1
8
12
1
MW
L1
TC1
TC2
RF Coil
LW
AM IFT
Oscillator Trimmer
Oscillator Coil
MW/LW TUNER UNIT

Figure 13–3

■ RECORD AMPLIFIER BIAS OSCILLATOR ADJUSTMENT (Refer to Figure 13–1)

1. Connect V.T.V.M. across a 100 ohm resistor R507 (or R508).
2. Set the Tape Selector switch (SW602, SW603) to the Normal position.
3. Place the set in Record mode and the Beat Canceller switch (SW502) to A position.
4. Adjust the Bias Step up Coil L501 (or L502) so that the V.T.V.M. readings becomes 52 mV.
5. Set the Tape Selector switch (SW602) to the Metal position.
6. Make sure the V.T.V.M. readings are 95 ± 6 mV.

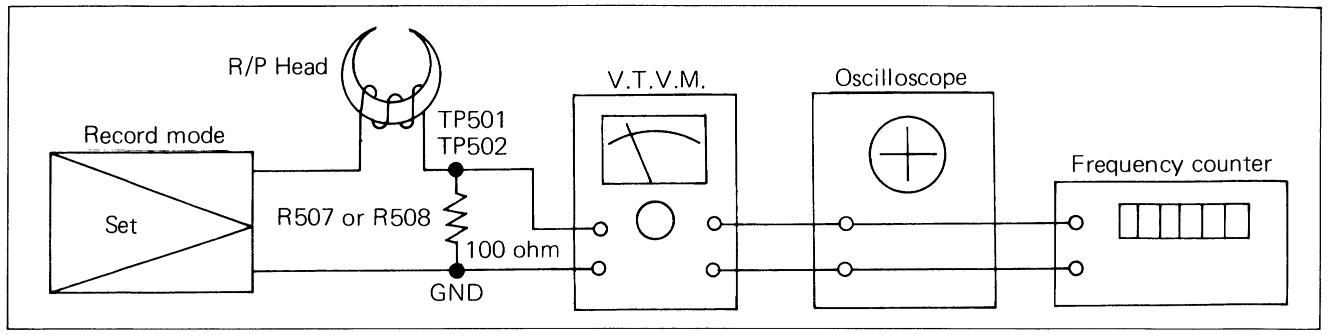

R/P Head
Record mode
Set
TP501
TP502
R507 or R508
100 ohm
GND
V.T.V.M.
Oscilloscope
Frequency counter

Figure 13–1

■ ERASE CURRENT CHECK (Refer to Figure 13–2)

1. Connect V.T.V.M. across a 1 ohm resistor R599.
2. Set the Tape Selector switch (SW602, SW603) to the Normal position.
3. Place the set in Record mode.
4. Make sure the erase current range is 50 ~ 70 mA. (50 ~ 70 mV)
5. Set the Tape Selector switch SW602 to the Metal position.
6. Make sure the erase current range is 110 ~ 130 mA. (110 ~ 130 mV) and record oscillator bias frequency range is 86 ± 3 kHz.
7. If the record oscillator bias frequency range is not 86 ±3 kHz, adjust the coil L503.

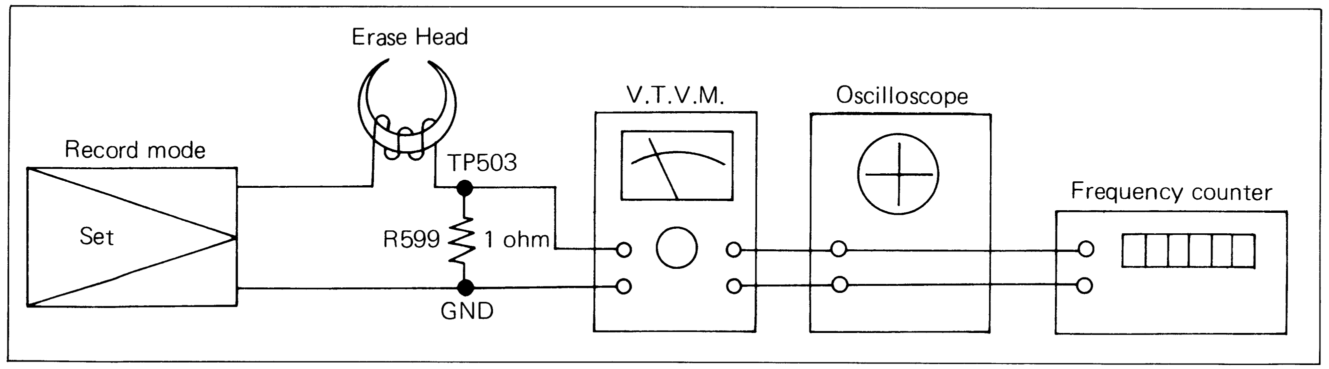

Erase Head
Record mode
Set
TP503
R599
1 ohm
GND
V.T.V.M.
Oscilloscope
Frequency counter

Figure 13–2

■ ADJUSTMENT POINTS

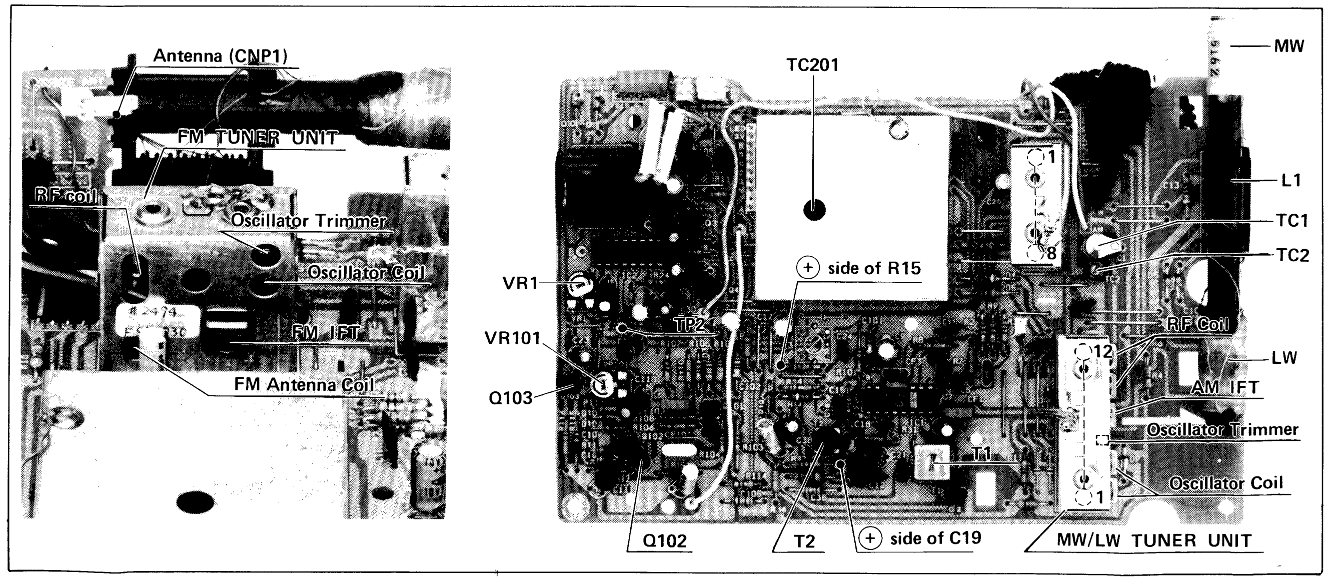

Antenna (CNP1)
FM TUNER UNIT
RF coil
Oscillator Trimmer
Oscillator Coil
FM IFT
FM Antenna Coil
TC201
MW
L1
TC1
TC2
VR1
VR101
Q103
TP2
⊕ side of R15
RF Coil
LW
AM IFT
Oscillator Trimmer
T1
Oscillator Coil
Q102
T2
⊕ side of C19
MW/LW TUNER UNIT

Figure 13–3

ALIGNMENT PROCEDURE (Refer to Figure 13–3)

■ FM IF/RF ALIGNMENT

- Set the FM switch (SW4) to ON position.
- Set the radio sensitivity switch (SW1) to DX position.

Step	Test Stage	Signal Generator		Frequency Display	Adjustment	Remarks
		Connection	Frequency			
1	IF	See Fig. 14–1. Reduce the input as small as possible, and raise oscilloscope's gain as high as possible.	10.7MHz (400Hz, 100%, FM modulated)	With the station memory button "5": 108MHz	FM IFT and T2	Adjust FM IFT to obtain the maximum waveform, and T2 to make the waveform symmetrical, with 10.7MHz as its center.
2	RF	See Fig. 14–2.		87.5MHz	Oscillator coil	Adjust the osc. coil to have DC VTVM read 1.7 ~ 1.8V.
3		See Fig. 14–2. Reduce the input as small as possible.	88MHz (400Hz, 100%, FM modulated)	88MHz	FM antenna coil RF coil	Adjust the coils to have AC VTVM reading the maximum.
4		Same as step 3.	108MHz (400Hz, 100%, FM modulated)	108MHz	Oscillator trimmer	Same as step 3.
5		Repeat steps 2, 3 and 4 until with the signal input of 88MHz to 108MHz the ③ Pin voltage will range from 1.7V to 7.8V (DC).				

Note:
For this adjustment, also refer to Figure 27–1 shown later, which illustrates the FM tuner unit and in which you will find all the controls used in this adjustment except for the T2.

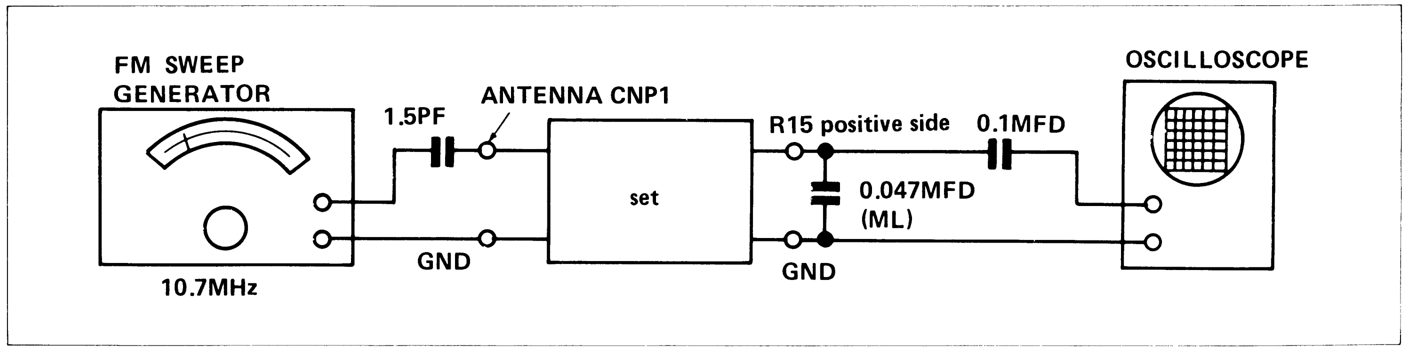

FM SWEEP GENERATOR
10.7MHz
1.5PF
ANTENNA CNP1
GND
set
R15 positive side
0.1MFD
0.047MFD (ML)
GND
OSCILLOSCOPE

Figure 14–1

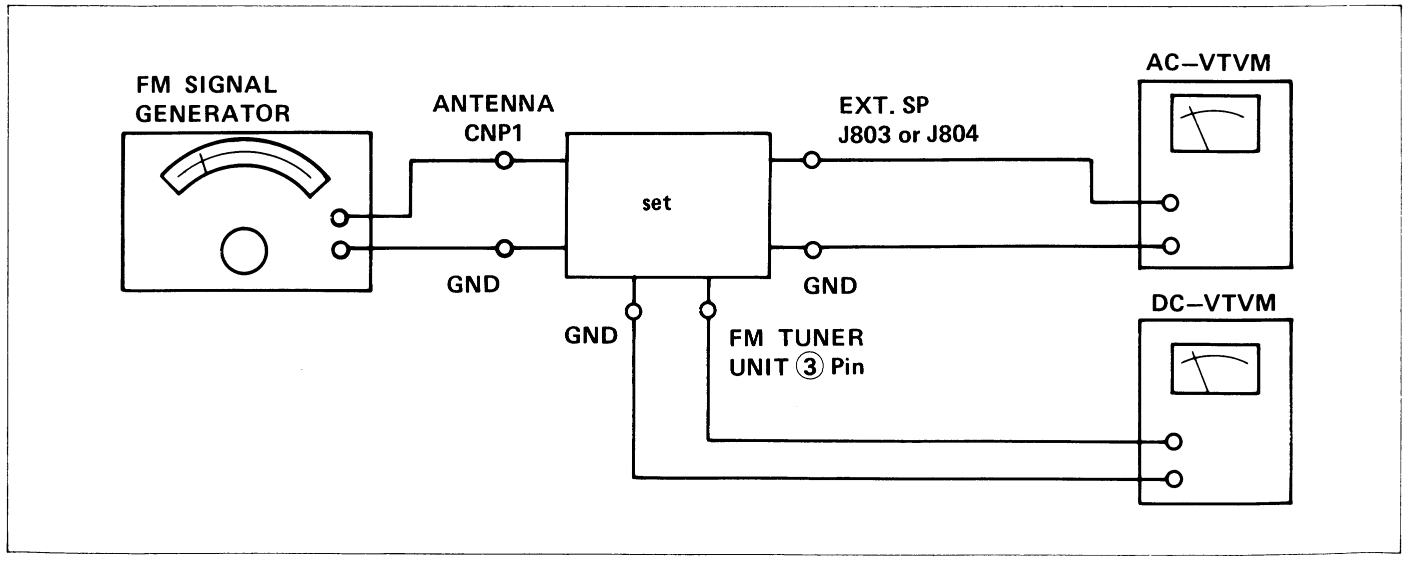

FM SIGNAL GENERATOR
ANTENNA CNP1
GND
set
EXT. SP J803 or J804
GND
GND
FM TUNER UNIT ③ Pin
AC–VTVM
DC–VTVM

Figure 14–2

■ AM (MW/LW) IF/RF ALIGNMENT

- Set the radio sensitivity switch (SW1) to DX position.

Step	Test Stage	Signal Generator		Frequency Display	Adjustment	Remarks
		Connection	Frequency			
1	IF (MW)	See Fig. 15–1. Reduce the input as small as possible, and raise oscilloscope's gain as high as possible.	450kHz (400Hz,30%, AM modulated)	With the tuning button "5" 1602kHz	AM IFT (violet)	Adjust the AM IFT so that IF curve becomes symmetrical and steady in its waveform. Repeat it twice or three times.
2	RF (MW)			531kHz	Oscillator coil (White)	Adjust the coil to have DC VTVM read 1.2 ~ 1.25V.
3		See Fig. 16–1. Reduce the input as small as possible.	603kHz (400Hz,30%, AM modulated)	603kHz	RF coil (Blue)	Adjust the coil to have AC VTVM read its maximum value.
4		Same as step 3.	1404kHz (400Hz, 30%, AM modulated)	1404kHz	Oscillator trimmer	Same as step 3.
5		Repeat steps 2 to 4 until, with the input signal of 531kHz to 1602kHz, the output voltage range will recome 1.2V to 8.3V.				
6		Same as step 3.	603kHz (400Hz,30%, AM modulated)	603kHz	MW/LW antenna coil (L1)	Same as step 3.
7		Same as step 3.	1404kHz (400Hz, 30%, AM modulated)	1404kHz	MW antenna trimmer (TC1)	Same as step 3.
8		Repeat steps 6 and 7 until no further improvement is attained.				
9	RF (LW)			155kHz	Oscillator coil	Adjust the coil to have DC VTVM read 1.6 ~ 1.65V.
10		See Fig. 16–1. Reduce the input as small as possible.	164kHz (400Hz, 30%, AM modulated)	164kHz	RF coil (Yellow) MW/LW antenna coil (L1)	Adjust the coil to have AC VTVM read its maximum value.
11		Same as step 3.	263kHz (400Hz, 30%, AM modulated)	263kHz	LW antenna trimmer (TC2)	Same as step 3.
12		Repeat steps 9 to 11 until, with the input signal of 155kHz to 263kHz, the output voltage range will become 1.6V to 7.5V.				

Note:
For this adjustment, refer to Figure 27–2 shown later, which illustrates the MW/LW tuner unit and in which you will find all the controls used in Steps 1 to 11.

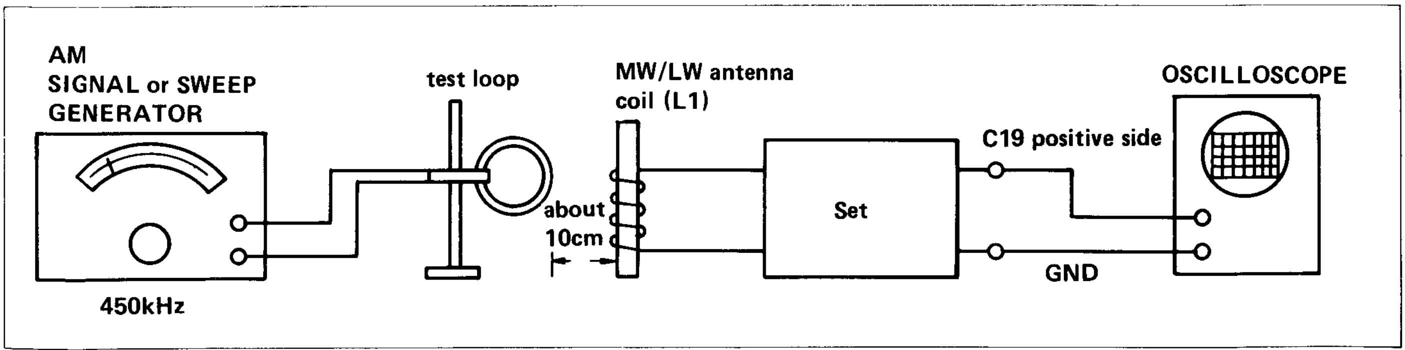


Figure 15–1

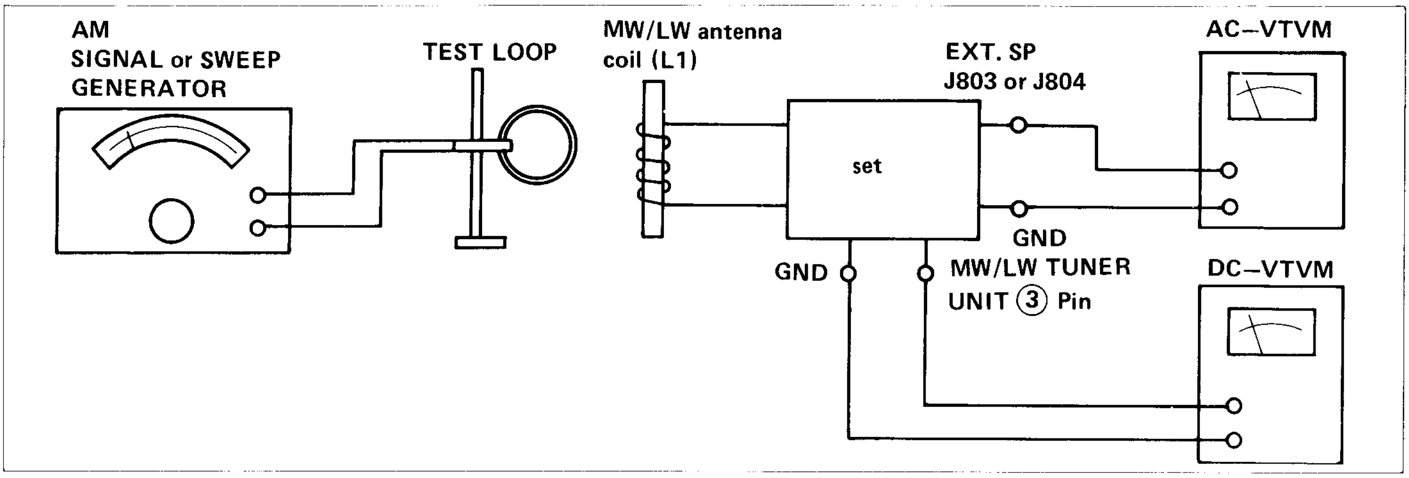

AM
SIGNAL or SWEEP
GENERATOR
TEST LOOP
MW/LW antenna
coil (L1)
set
EXT. SP
J803 or J804
AC–VTVM
GND
GND
MW/LW TUNER
UNIT ③ Pin
DC–VTVM

Figure 16–1

■ FM/MW/LW SCAN AUTO STOP ADJUSTMENT

- Set the radio sensitivity switch (SW1) to DX position.

Step	Test Stape	Signal Generator		Receiver	Adjustment
		Connection	Frequency		
1	FM	Refer to Figure 16–2	98 MHz – 22.5 kHz (1 kHz, 10 kHz FM modulated)	98 MHz	Adjust the output of standard signal generator to make the tuning indicator light up.
2	FM	Same as above	Same as above		Adjust VR101 so that the voltage range at collector of Q103 becomes 0.1 to 2.5 V.
3	MW	Same as above	999 kHz (400 Hz, 30% AM modulated)	999 kHz	Adjust the output of standard signal generator to make the tuning indicator light up.
4	MW	Same as above	Same as above	Make sure that auto scanning starts from 900 kHz and reaches 999 kHz, and that the auto scan operation stops just at the point of 999 kHz.	Same as above

Note:

The VR101 is used to adjust the voltage at collector of Q102 to about 3 V, with which the auto scan operation stops and the tuning indicator lights up. This voltage level setting is needed for only FM reception but not for MW/LW reception. The procedure in the steps 3 and 4 applies not only to MW checking but also to LW checking.

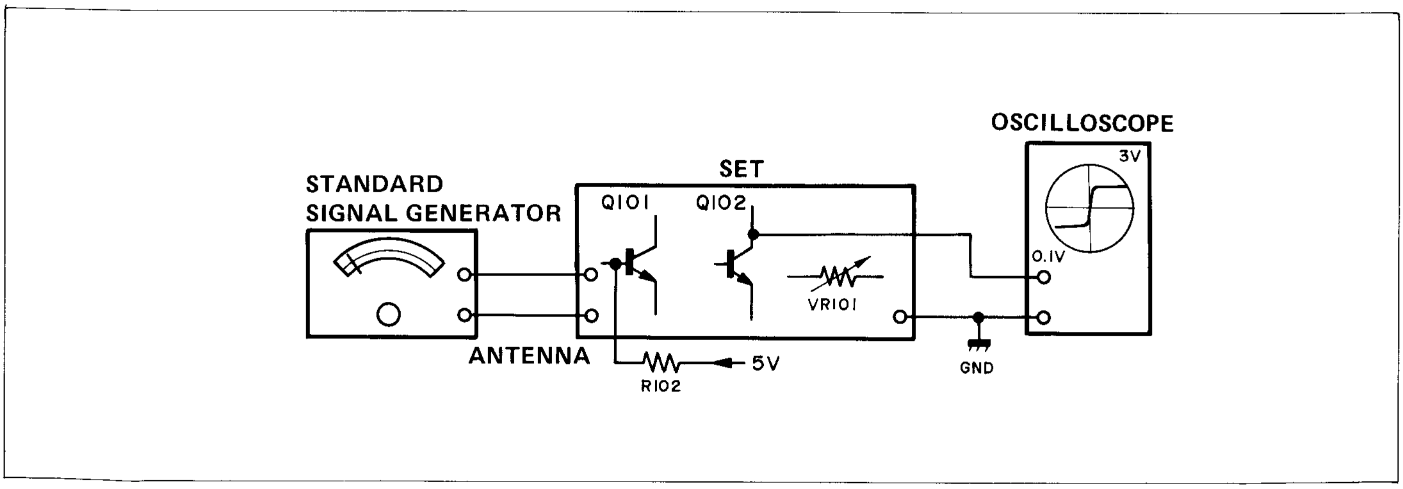

STANDARD
SIGNAL GENERATOR
SET
Q101
Q102
VR101
ANTENNA
R102
5V
OSCILLOSCOPE
3V
0.1V
GND

Figure 16–2

■ PLL REFERENCE FREQUENCY CHECK

1. Set the band selector switch to FM of the counter to ground position.
2. Make sure a frequency of 108 MHz is indicated by pushing station memory button 5.
3. Connect one terminal of frequency counter, across a capacitor of 10 pF, to pin ⑦ of FM tuner unit, and the other of the counter to ground.
4. Make sure the counter reads a frequency range of 118.7 MHz (108 MHz + 10.7 MHz) ± 500 Hz. Adjust trimmer TC201.

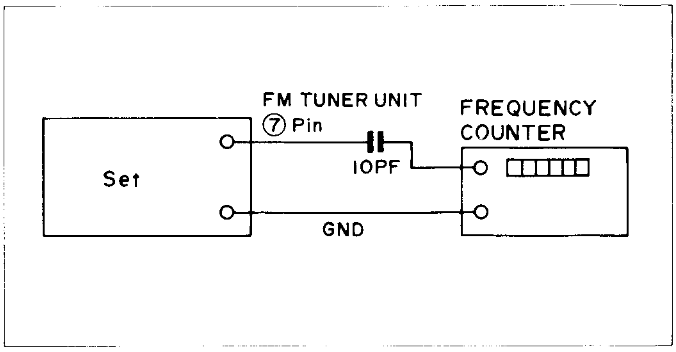

Set
FM TUNER UNIT
⑦ Pin
10PF
GND
FREQUENCY COUNTER

Figure 17–1

■ CLOCK REFERENCE FREQUENCY ADJUSTMENT

(See Figure 11–1)

1. Connect a frequency counter, across a capacitor or 2 pF to 5 pF, to pin ⑬ of IC301, and ground one end of the counter.
2. Adjust trimmer TC301 so that the indicates the frequency range of 32.768 kHz ± 0.15 Hz.

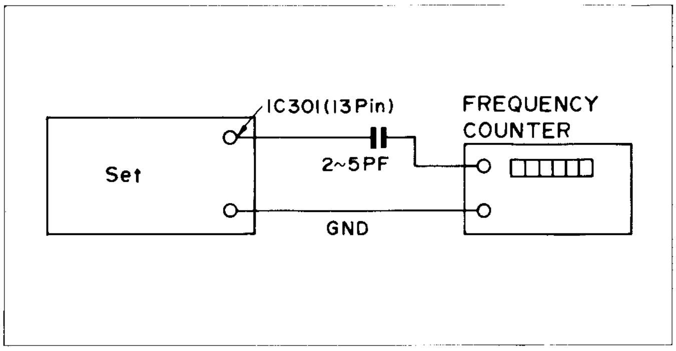

Set
IC301(13Pin)
2~5PF
GND
FREQUENCY COUNTER

Figure 17–2

■ FM MULTIPLEX (19 kHz) ADJUSTMENT

1. Set the band selector switch (SW4) to FM position.
2. Set the radio sensitivity switch (SW1) to DX position.
3. Make sure a frequency of 87.5 MHz is indicated by pushing station memory button 1.
4. Apply signal of 87.5 MHz (54 dB, non-modulated), from FM signal generator, to the set, and adjust the semi-variable resistor (VR1) so that the frequency range of the counter is 19.00 ± 0.02 kHz.

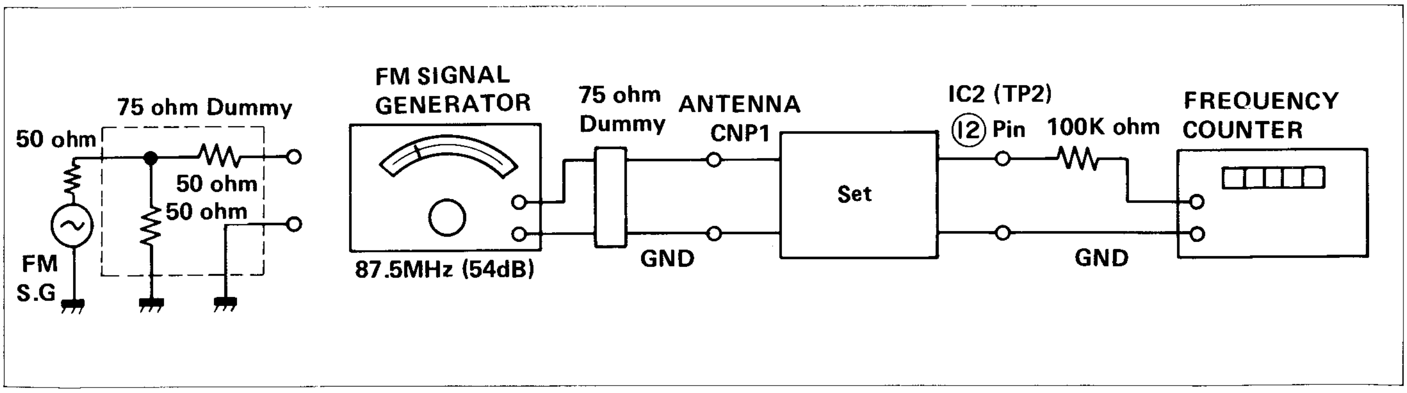

75 ohm Dummy
50 ohm
50 ohm
50 ohm
FM S.G
FM SIGNAL GENERATOR
87.5MHz (54dB)
75 ohm Dummy
ANTENNA CNP1
GND
Set
IC2 (TP2)
⑫ Pin
100K ohm
GND
FREQUENCY COUNTER

Figure 17–3

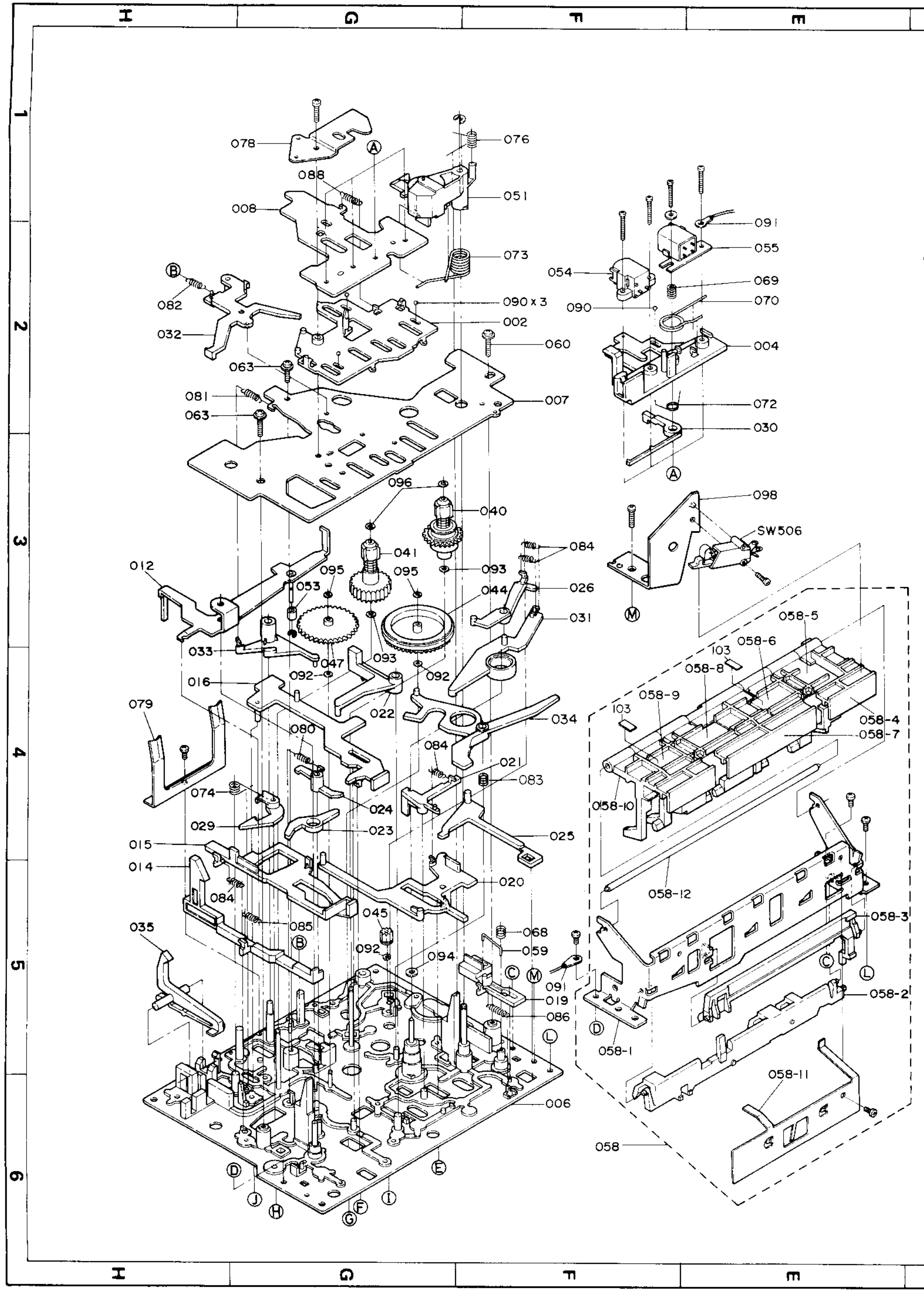

H
G
F
E
D
1
2
3
4
5
6
078
076
Ⓐ
088
051
008
073
Ⓑ
082
090 x 3
032
002
060
063
081
063
007
096
040
041
095
095
093
084
012
053
044
026
031
033
047
093
092
092
016
022
034
079
080
084
021
083
074
024
029
023
025
015
014
020
084
085
045
035
Ⓑ
092
094
068
059
Ⓒ
Ⓜ
091
019
086
Ⓛ
006
Ⓓ
Ⓙ
Ⓗ
Ⓖ
Ⓕ
Ⓘ
Ⓔ
091
055
054
069
090
070
004
072
030
Ⓐ
098
SW506
Ⓜ
058-5
103
058-6
058-8
058-9
103
058-4
058-7
058-10
058-12
058-3
Ⓒ
Ⓛ
058-2
Ⓓ
058-1
058-11
058

Figure 18–1 MECHANISM EXPLODED TOP VIEW

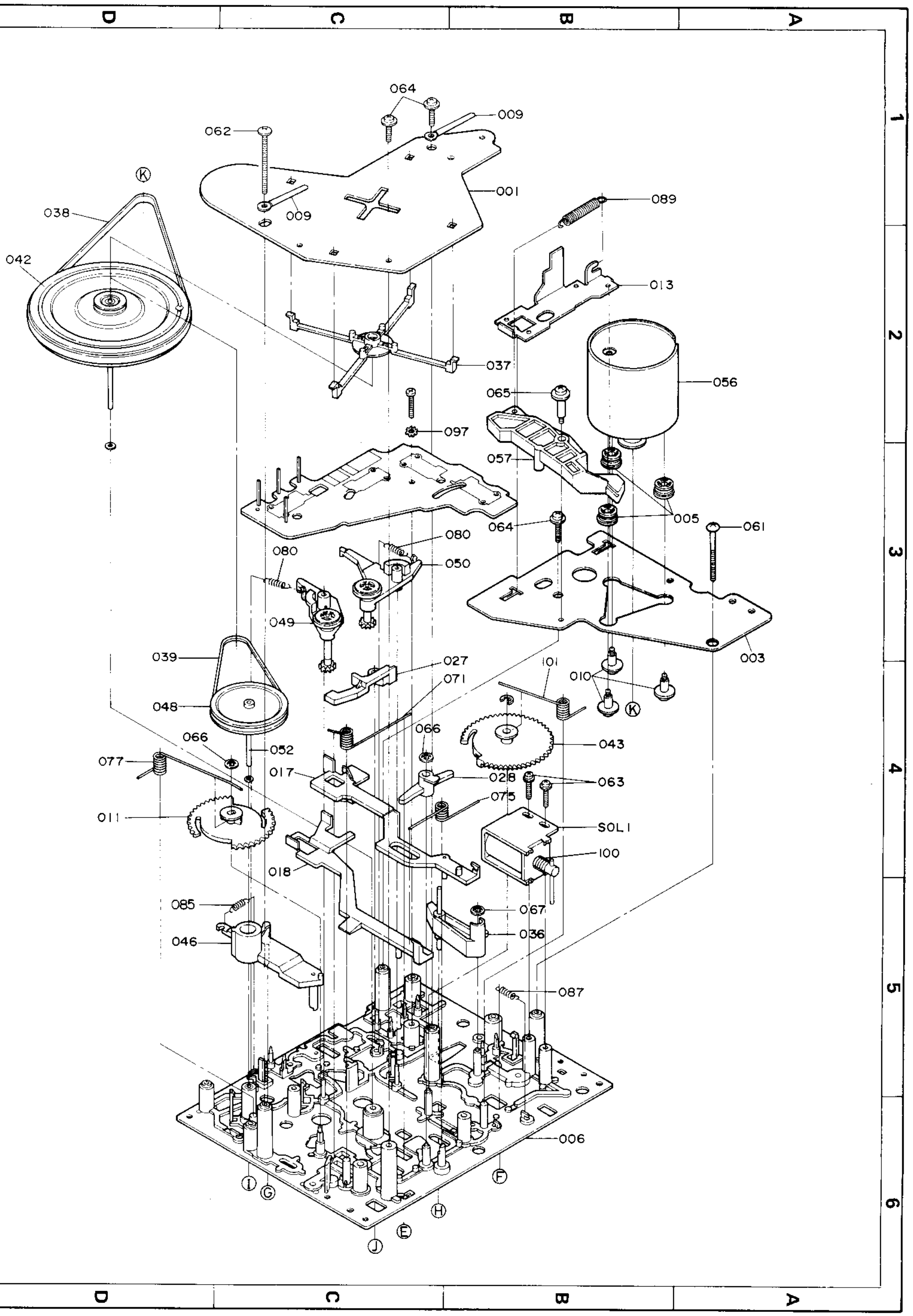

C
B
A
1
2
3
4
5
6
064
009
062
Ⓚ
001
009
089
038
042
013
037
056
065
097
057
005
061
064
080
050
080
049
003
039
027
101
071
010
Ⓚ
048
043
066
052
066
077
017
028
063
075
011
SOL1
018
100
085
067
046
036
087
006
Ⓘ
Ⓖ
Ⓗ
Ⓕ
Ⓙ
Ⓔ

Figure 18–2 MECHANISM EXPLODED BOTTOM VIEW

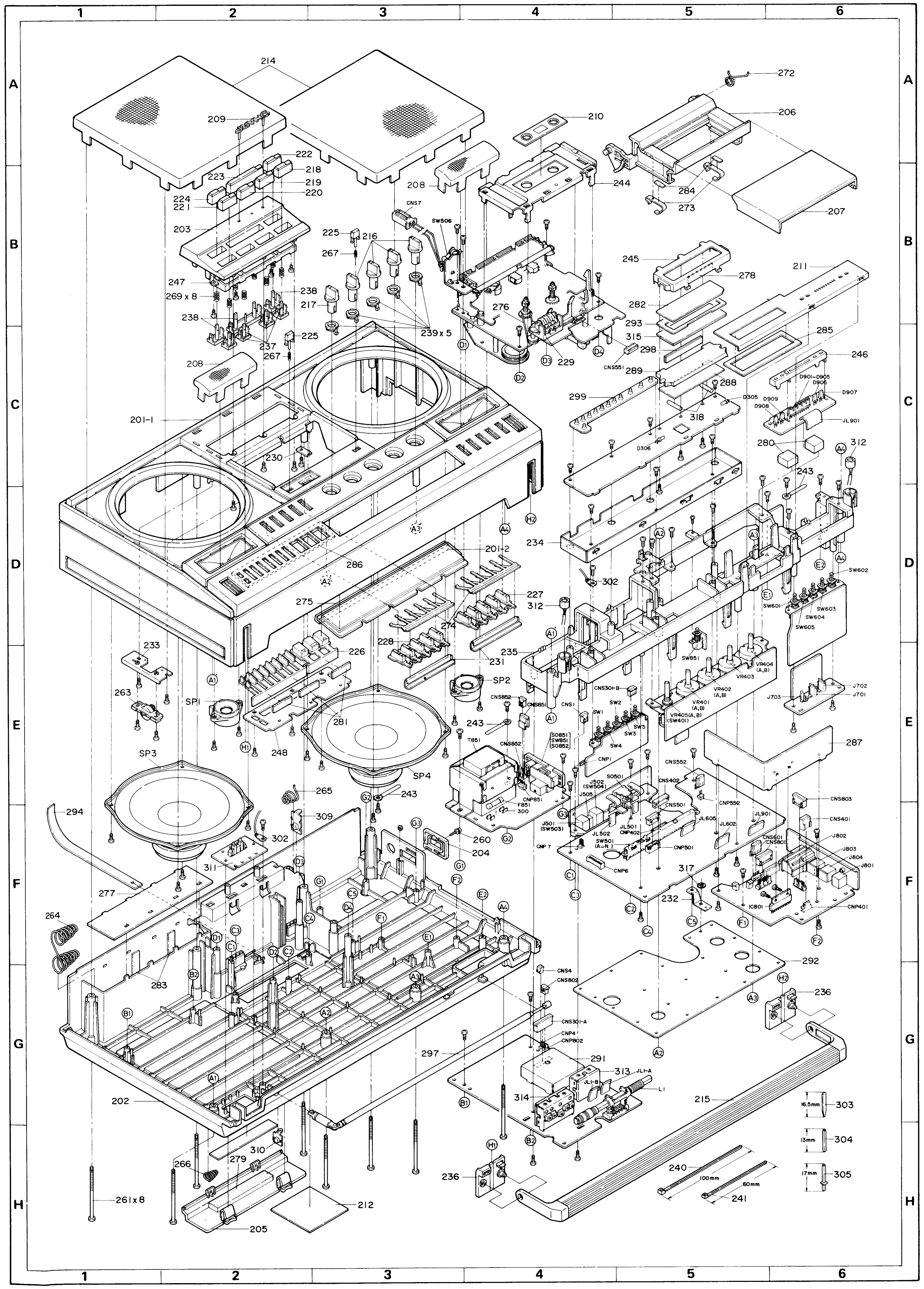

1
2
3
4
5
6
A
B
C
D
E
F
G
H
214
209
222
218
219
220
223
224
221
203
247
269 x 8
238
217
225
216
267
237
208
201-1
210
206
272
244
284
273
207
CNS7
SW506
245
278
211
276
282
293
315
298
289
229
239 x 5
285
246
299
288
318
280
312
243
230
286
275
201-2
234
227
312
302
235
231
SP2
233
263
SP1
226
228
274
281
243
248
SP3
SP4
287
265
309
294
302
311
260
204
300
277
264
283
317
232
292
236
202
297
291
313
314
215
303
304
305
16.5mm
13mm
17mm
240
241
100mm
60mm
266
279
310
212
205
261 x 8
236
T851
CNS4
CNS802
CNP4
CNP802
JL1-A
L1

Figure 19 CABINET EXPLODED VIEW

■ NOTES ON SCHEMATIC DIAGRAM

1. Parts marked with " ⚠ " (▨) are important for maintaining the safety of the set. Be sure to replace these parts with specified ones for maintaining the safety and performance of the set.
2. To differentiate the units of resistors, such symbols as K and M are used: the symbol K means 1000 ohms and the symbol M means 1 Meg. ohm (1/4 W).
3. Capacitor
   - Unless otherwise specified, any capacitance is expressed in microfarad. P = picofarad
   - The types of capacitors are seen from the symbols ML (mylar capacitor). Styrol (polystyrene film capacitor) and CH (temperature compensating ceramic capacitor).
4. As to electrolytic capacitor, the expression "capacitance/withstand voltage" is used.
5. For voltages at each point of the tuner, they are indicated in parentheses for MW and the values without parentheses are for FM. In any case, the voltage is measured with no signal given, by using VTVM.
6. Attention should be drawn to voltage and the relevant conditions below.
   Audio voltage — in play mode and under no signal condition. Parenthesized parts voltage — under record condition. PHONO circuit voltage — in PHONO made ON position.

SW No.	DISCRIPTION	POSITION	SW No.	DISCRIPTION	POSITION
SW1(A, B)	DX/Local Switch	DX–LOCAL	SW507	Muting Switch	ON–OFF
SW2(A, B)	MW Switch	ON–OFF	SW508	APSS Switch	ON–OFF
SW3(A, B)	LW Switch	ON–OFF	SW509	Mechanism Main Switch	ON–OFF
SW4	FM Switch	ON–OFF	SW601(A ~ F)	Power Switch	ON–OFF
SW501(A ~ N)	Record/Playback Switch	RECORD–PLAYBACK	SW602(A ~ F)	Tape Selector Switch	METAL–OFF
SW502(A ~ C)	Beat Cancel Switch	A–B–C	SW603(A ~ F)	Tape Selector Switch	NORMAL–CrO2
SW503	EXT. Microphone (R-ch) Switch	ON–OFF	SW604(A ~ D)	Dolby N.R. Switch	ON–OFF
SW504	EXT. Microphone (L-ch) Switch	ON–OFF	SW605	Phono/Radio Switch	PHONO–RADIO
SW505	DIN Socket Switch	ON–OFF	SW851	AC/DC Selector Switch	AC–DC
SW506	Pause Switch	ON–OFF	SW871	Dial Light Switch	ON–OFF

■ CAUTIONS ON HANDLING C-MOS LSI

As for C-MOS LSI, either the input or output terminal has remarkably high impedance as compared with ordinary semiconductor IC. Therefore, C-MOS LSI is liable to be affected by the induction of near-by high-tension power source or AC power source and the static electricity originated in the human body: what is worse, it is so damaged that its quality will not be recovered again. Therefore, pay attention to the following when handling it.

- **Caution on Servicing**

When the LSI is found defective on your servicing, repair or replace it as follows:

(1) A soldering tool in use should have a load resistance of more than 1 Meg. ohm to be connected with ground.
(2) Ground a bench.
(3) Before removing LSI from P.W.B., be sure to turn off the power switch.
(4) When inserting LSI into P.W.B., ground the earth terminal of P.W.B.
(5) Be sure to ground the earth terminal of DC power source.
(6) Be sure to ground the human body across a load resistance of more than 1 Meg. ohm: otherwise the body encounters large current.
(7) After the repairs, be sure to remove soldering flux and perform moisture-proof treatment.

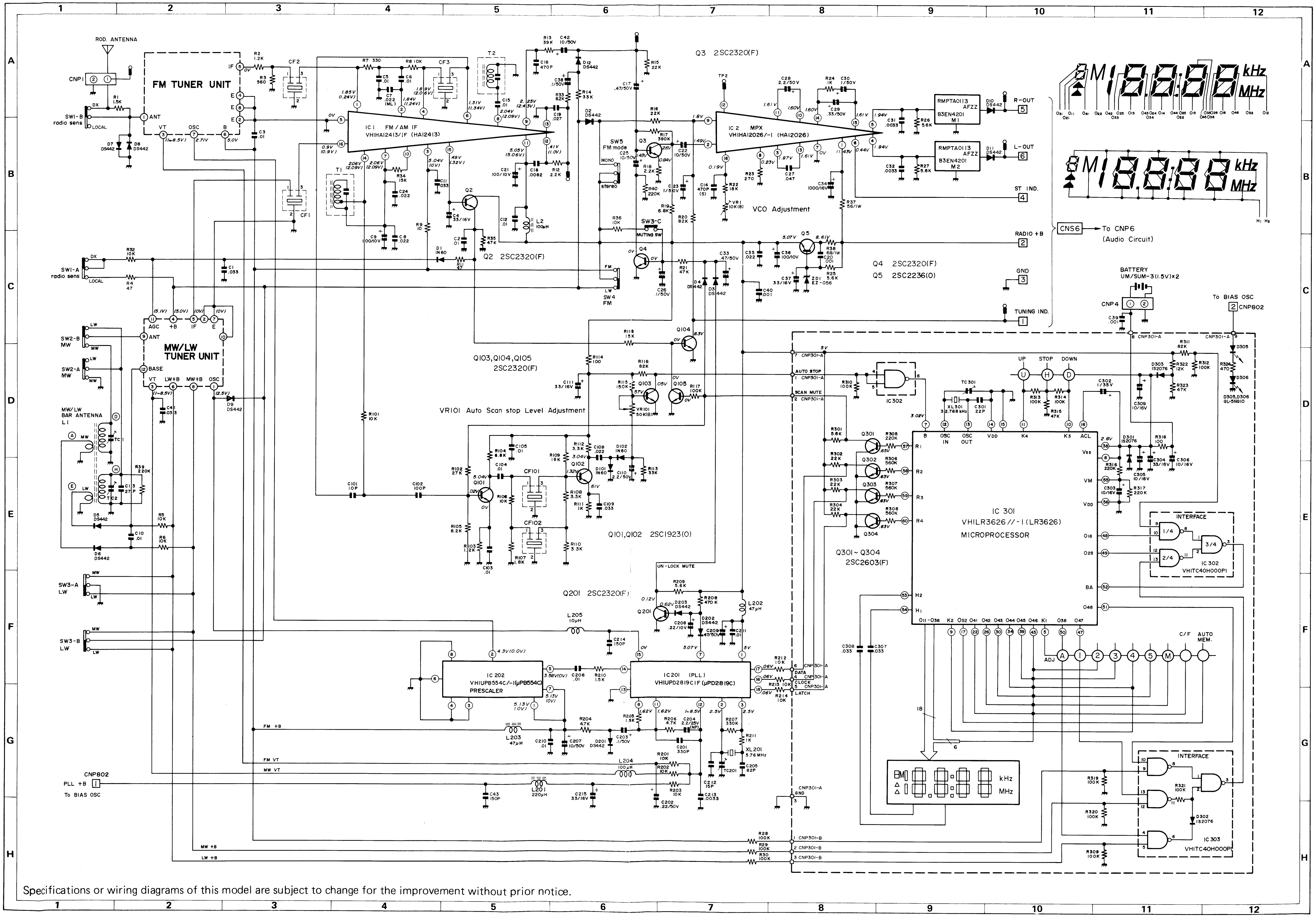
- **Cautions on Preservation**

To preserve C-MOS LSI in safe, all the terminals should be kept at the same potential in the following methods.

(1) Pack it with aluminium foil, or
(2) Put it in a special case for LSI.

■ VOLTAGE MEASUREMENT USING A TESTER

Using a tester (of internal resistance 20K ohms/V) is allowed for measuring voltages at each point of the set, but it must never be used for the connectors (IC201 and IC301) of C-MOS LSI. If used, the tester may damage the LSI since its input/output terminals have much high impedance as described in "CAUTIONS ON HANDLING C-MOS LSI."


ROD. ANTENNA
CNP1
SW1-B radio sens
DX
LOCAL
FM TUNER UNIT
ANT
VT
OSC
IF
E
B
CF1
CF2
CF3
T1
T2
IC1 FM/AM IF VHIHA12413/IF (HA12413)
Q2 2SC2320(F)
Q3 2SC2320(F)
IC2 MPX VHIHA12026/-1 (HA12026)
VCO Adjustment
SW5 FM mode
MONO
stereo
SW3-C MUTING SW
SW4 FM
LW
RMPTA0113 AFZZ B3EN4201 M1
RMPTA0113 AFZZ B3EN4201 M2
R-OUT
L-OUT
ST IND.
RADIO +B
GND
TUNING IND.
Q4 2SC2320(F)
Q5 2SC2236(O)
CNS6
To CNP6 (Audio Circuit)
BATTERY UM/SUM-3(1.5V)×2
CNP4
To BIAS OSC
CNP802
SW1-A radio sens
SW2-B MW
SW2-A MW
MW/LW TUNER UNIT
AGC
+B
BASE
LW+B
MW+B
MW/LW BAR ANTENNA L1
SW3-A LW
SW3-B LW
Q103,Q104,Q105 2SC2320(F)
VR101 Auto Scan stop Level Adjustment
Q101,Q102 2SC1923(O)
CF101
CF102
UN-LOCK MUTE
Q201 2SC2320(F)
IC202 VHIUPB554C/-1(μPB554C) PRESCALER
IC201 (PLL) VHIUPD2819C1F (μPD2819C)
XL201 5.76MHz
FM +B
FM VT
MW VT
MW +B
LW +B
PLL +B
To BIAS OSC
CNP301-A
CNP301-B
AUTO STOP
SCAN MUTE
DATA
CLOCK
LATCH
IC302
Q301~Q304 2SC2603(F)
IC301 VHILR3626//-1(LR3626) MICROPROCESSOR
XL301 32.768kHz
TC301
UP
STOP
DOWN
INTERFACE
IC302 VHITC40H000PI
IC303 VHITC40H000PI
C/F
AUTO MEM.
ADJ
kHz
MHz

Specifications or wiring diagrams of this model are subject to change for the improvement without prior notice.

Figure 21 SCHEMATIC DIAGRAM (1/3)

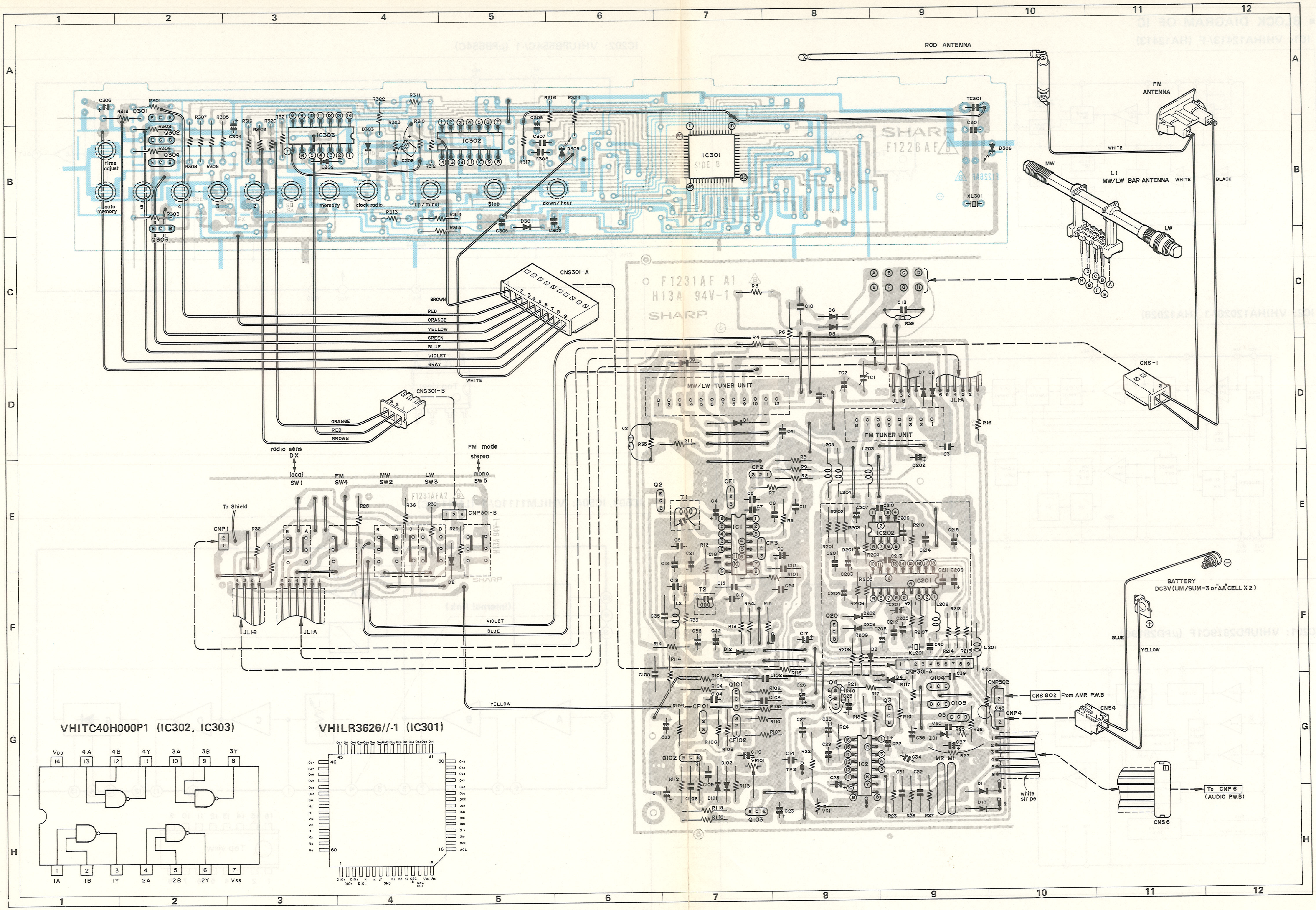
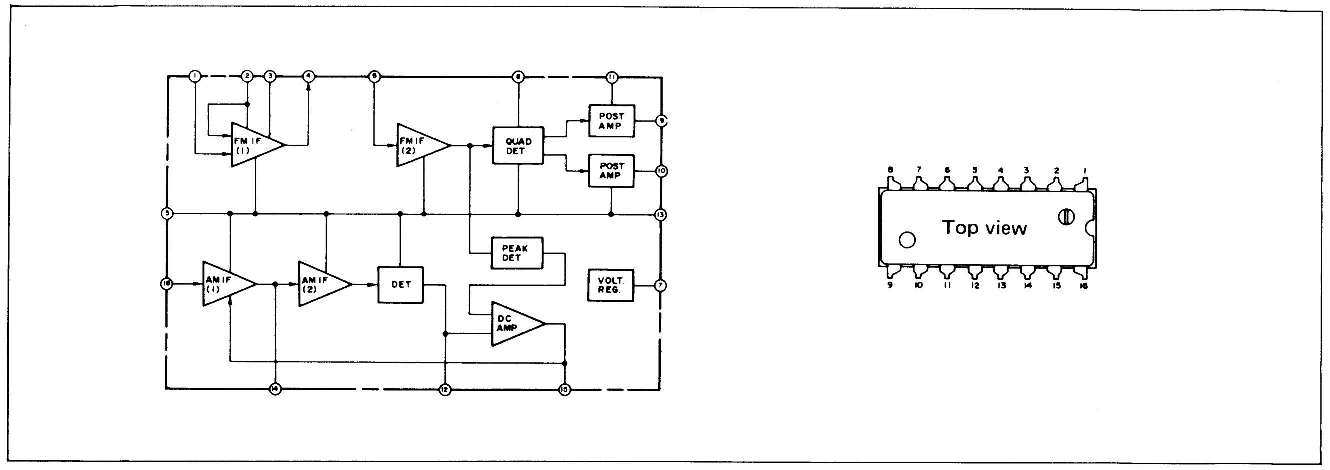

ROD ANTENNA
FM ANTENNA
WHITE
BLACK
MW
L1 MW/LW BAR ANTENNA
LW
TC301
C301
D306
XL301
IC301 SIDE B
SHARP F1226AF
IC302
IC303
Q301
Q302
Q304
Q303
time adjust
auto memory
memory
clock radio
up / minut
Stop
down / hour
CNS301-A
BROWN
RED
ORANGE
YELLOW
GREEN
BLUE
VIOLET
GRAY
WHITE
CNS301-B
radio sens
DX
local
SW1
FM SW4
MW SW2
LW SW3
FM mode
stereo
mono
SW5
To Shield
CNP1
CNP301-B
JL1B
JL1A
F1231AF A1
H13A 94V-1
SHARP
MW/LW TUNER UNIT
FM TUNER UNIT
CNS-1
IC1
IC2
IC201
IC202
CNP301-A
CNS 802
From AMP. P.W.B
CNS4
CNP802
CNP4
BATTERY
DC3V (UM/SUM-3 or "AA" CELL X 2)
BLUE
YELLOW
white stripe
To CNP 6 (AUDIO P.W.B)
CNS6
VHITC40H000P1 (IC302, IC303)
VDD
4A
4B
4Y
3A
3B
3Y
1A
1B
1Y
2A
2B
2Y
VSS
VHILR3626//-1 (IC301)

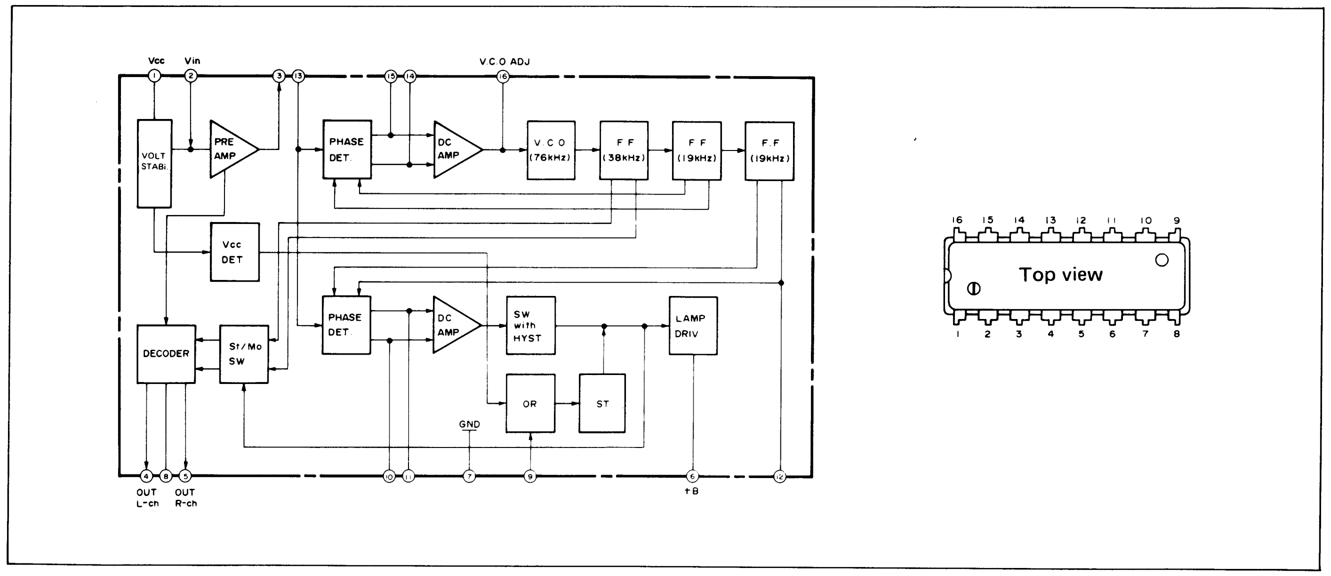
Figure 23 WIRING SIDE OF PRINTED WIRING BOARD (1/3)

■ BLOCK DIAGRAM OF IC

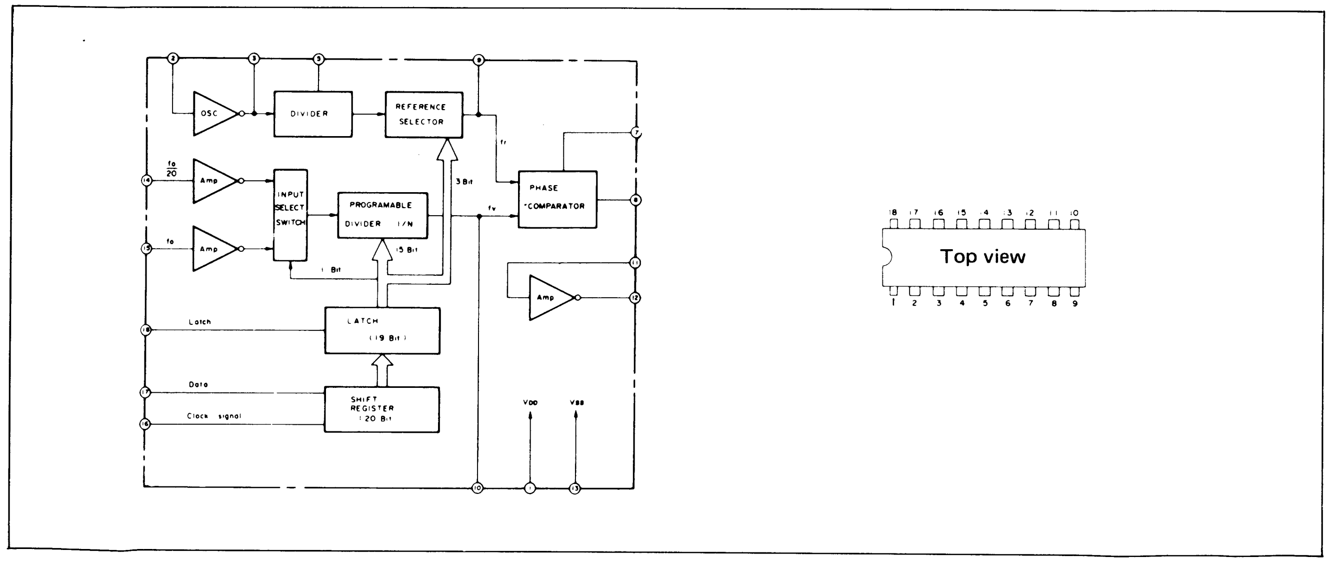
IC1: VHIHA12413/-F (HA12413)


FM IF (1)
FM IF (2)
QUAD DET
POST AMP
POST AMP
PEAK DET
VOLT REG.
AM IF (1)
AM IF (2)
DET
DC AMP
Top view

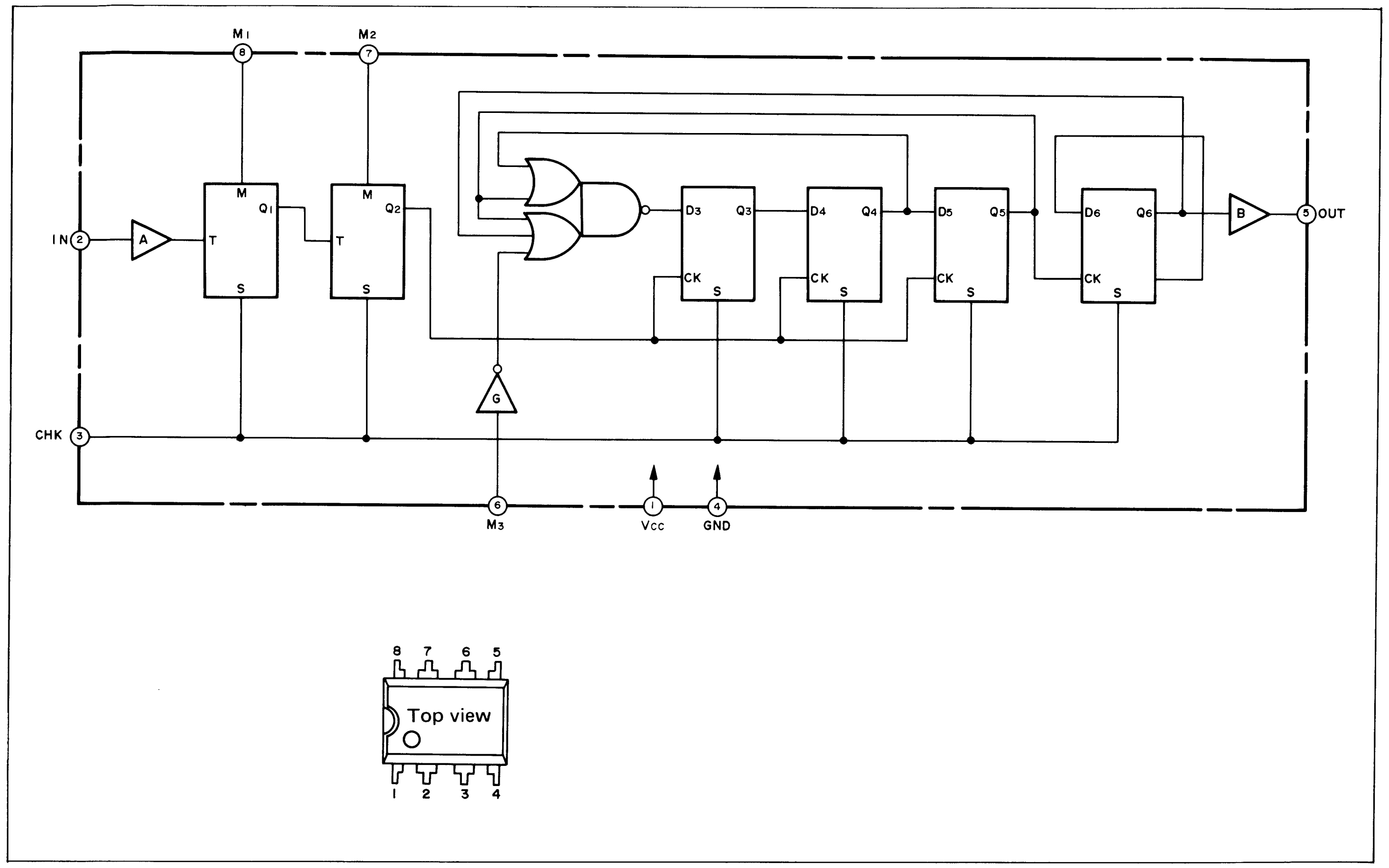
IC2: VHIHA12026/-1 (HA12026)


Vcc
Vin
V.C.O ADJ
VOLT STABi.
PRE AMP
PHASE DET.
DC AMP
V.C.O (76kHz)
F F (38kHz)
F F (19kHz)
F.F (19kHz)
Vcc DET
DECODER
St/Mo SW
PHASE DET.
DC AMP
SW with HYST
LAMP DRIV
OR
ST
GND
OUT L-ch
OUT R-ch
+B
Top view

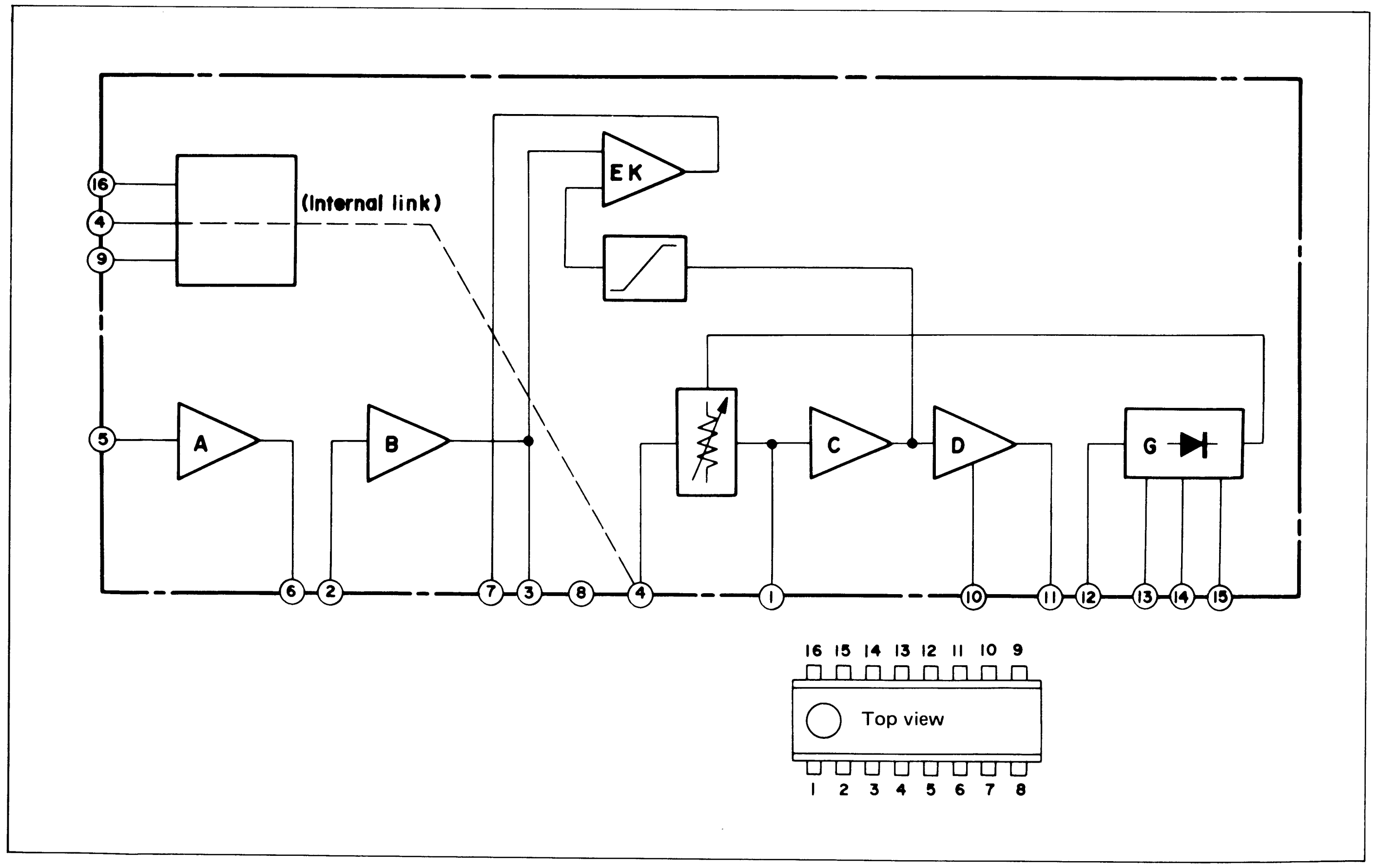
IC201: VHIUPD2819C1F (μPD2819C)

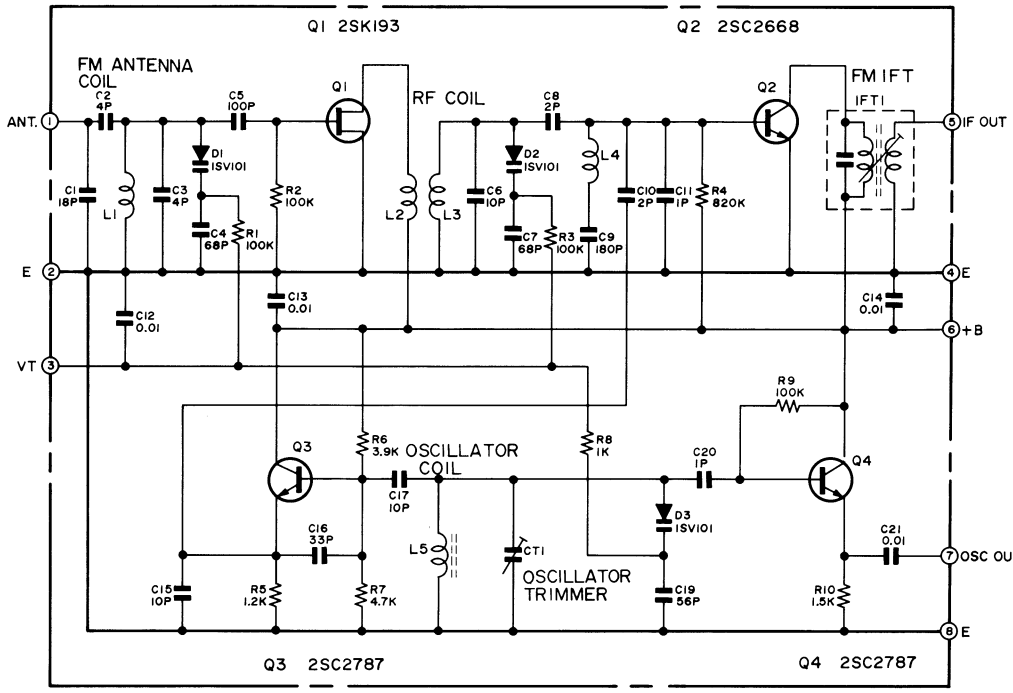

OSC
DIVIDER
REFERENCE SELECTOR
fo/20
Amp
fo
Amp
INPUT SELECT SWITCH
PROGRAMABLE DIVIDER 1/N
3 Bit
15 Bit
1 Bit
fr
fv
PHASE COMPARATOR
Amp
Latch
LATCH (19 Bit)
Data
Clock signal
SHIFT REGISTER (20 Bit)
VDD
VSS
Top view

IC202: VHIUPB554C/-1 (μPB554C)


M1
M2
IN
A
M
Q1
T
S
M
Q2
T
S
D3
Q3
CK
S
D4
Q4
CK
S
D5
Q5
CK
S
D6
Q6
CK
S
B
OUT
G
CHK
M3
Vcc
GND
Top view

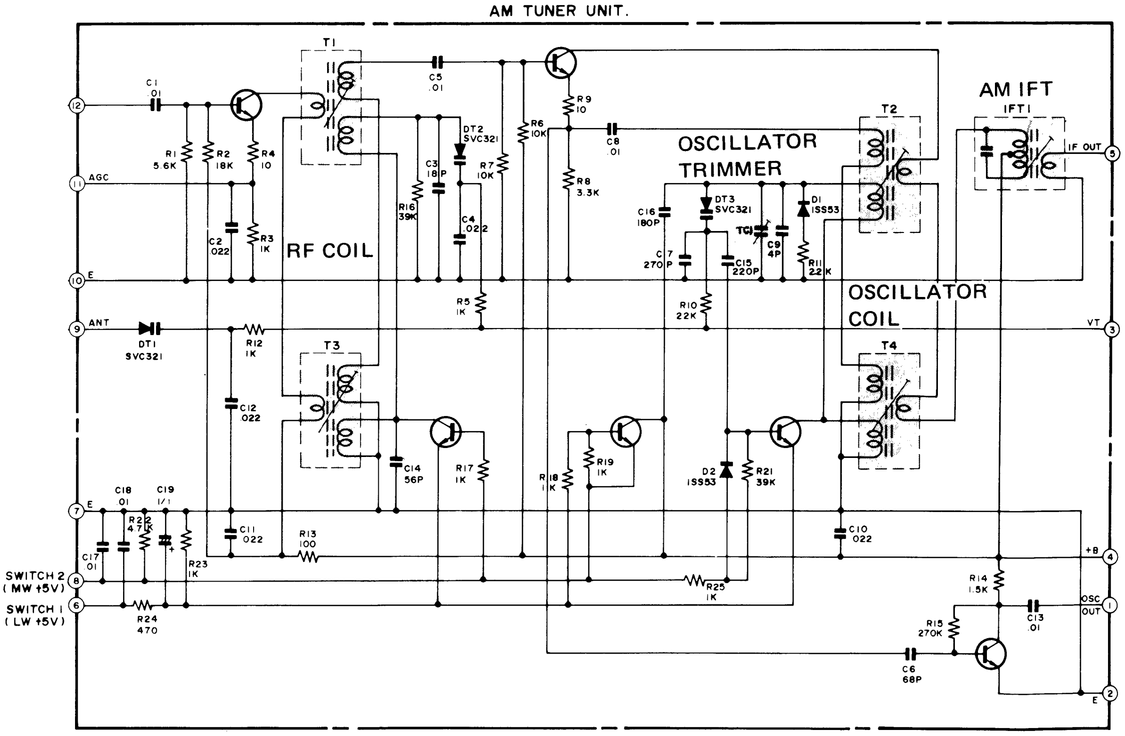
IC503, IC504: VHILM1111C/-1 (LM1111C)


(Internal link)
EK
A
B
C
D
G
Top view


Q1 2SK193
Q2 2SC2668
FM ANTENNA COIL
ANT. ①
C2 4P
C5 100P
Q1
RF COIL
C8 2P
Q2
FM IFT
IFT1
⑤ IF OUT
D1 1SV101
C1 18P
L1
C3 4P
R2 100K
C4 68P
R1 100K
L2
L3
C6 10P
D2 1SV101
L4
C7 68P
R3 100K
C9 180P
C10 2P
C11 1P
R4 820K
E ②
④ E
C13 0.01
C12 0.01
C14 0.01
⑥ +B
VT ③
R9 100K
Q3
R6 3.9K
OSCILLATOR COIL
R8 1K
C20 1P
Q4
C17 10P
D3 1SV101
C16 33P
L5
CT1
C21 0.01
⑦ OSC OUT
OSCILLATOR TRIMMER
C15 10P
R5 1.2K
R7 4.7K
C19 56P
R10 1.5K
⑧ E
Q3 2SC2787
Q4 2SC2787

The FM tuner unit shown above is supplied as an assembly unit and to supply its constituent parts separately is not possible.

Figure 27–1 SCHEMATIC DIAGRAM OF FM TUNER UNIT


AM TUNER UNIT.
T1
C1 .01
⑫
C5 .01
R9 10
R6 10K
C8 .01
DT2 SVC321
R1 5.6K
R2 18K
R4 10
⑪ AGC
C3 18P
R7 10K
R8 3.3K
R16 39K
C4 .022
C2 .022
R3 1K
RF COIL
⑩ E
R5 1K
⑨ ANT
DT1 SVC321
R12 1K
T3
C12 .022
C14 56P
R17 1K
R18 1K
R19 1K
C18 .01
C19 1/1
⑦ E
R22 4.7K
C11 .022
R13 100
C17 .01
R23 1K
SWITCH 2 (MW +5V) ⑧
SWITCH 1 (LW +5V) ⑥
R24 470
OSCILLATOR TRIMMER
T2
AM IFT
IFT1
IF OUT ⑤
C16 180P
DT3 SVC321
TC1
C9 4P
D1 1SS53
C7 270P
C15 220P
R11 22K
R10 22K
OSCILLATOR COIL
VT ③
T4
D2 1SS53
R21 39K
C10 .022
+B ④
R25 1K
R14 1.5K
OSC OUT ①
C13 .01
R15 270K
C6 68P
E ②

The MW/LW tuner unit shown above is supplied as an assembly unit and to supply its constituent parts separately is not possible.

Figure 27–2 SCHEMATIC DIAGRAM OF NW/LW TUNER UNIT

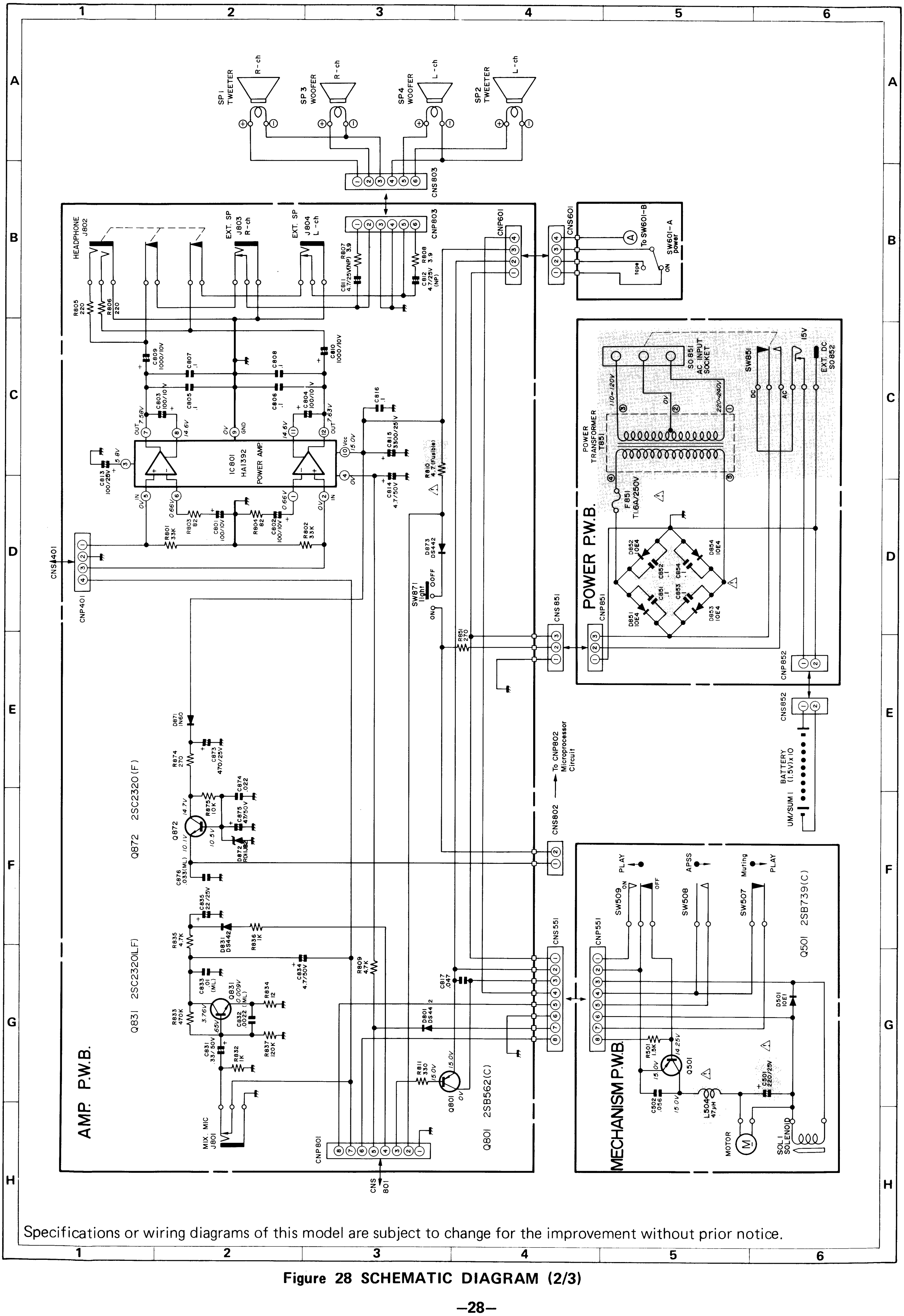

AMP. P.W.B.
POWER P.W.B.
MECHANISM P.W.B.
SP1 TWEETER R-ch
SP3 WOOFER R-ch
SP4 WOOFER L-ch
SP2 TWEETER L-ch
CNS803
CNP803
HEADPHONE J802
EXT. SP J803 R-ch
EXT. SP J804 L-ch
IC801 HA1392 POWER AMP
CNP601
CNS601
SW601-A power
To SW601-B
tape
ON
SO851 AC INPUT SOCKET
POWER TRANSFORMER T851
110~120V
220~240V
F851 T1.6A/250V
SW851
EXT. DC SO852
D851 10E4
D852 10E4
D853 10E4
D854 10E4
CNS851
CNP851
CNP852
CNS852
BATTERY (1.5V)x10
UM/SUM1
CNS401
CNP401
SW871 light
D871 1N60
Q872 2SC2320(F)
Q831 2SC2320(LF)
Q801 2SB562(C)
Q501 2SB739(C)
MIX. MIC J801
CNP801
CNS801
CNS802
To CNP802 Microprocessor Circuit
CNS551
CNP551
SW509 PLAY
SW508 APSS
SW507 Muting PLAY
D501 10E1
L504 47μH
MOTOR
SOL1 SOLENOID
1
2
3
4
5
6
A
B
C
D
E
F
G
H
Specifications or wiring diagrams of this model are subject to change for the improvement without prior notice.

Figure 28 SCHEMATIC DIAGRAM (2/3)

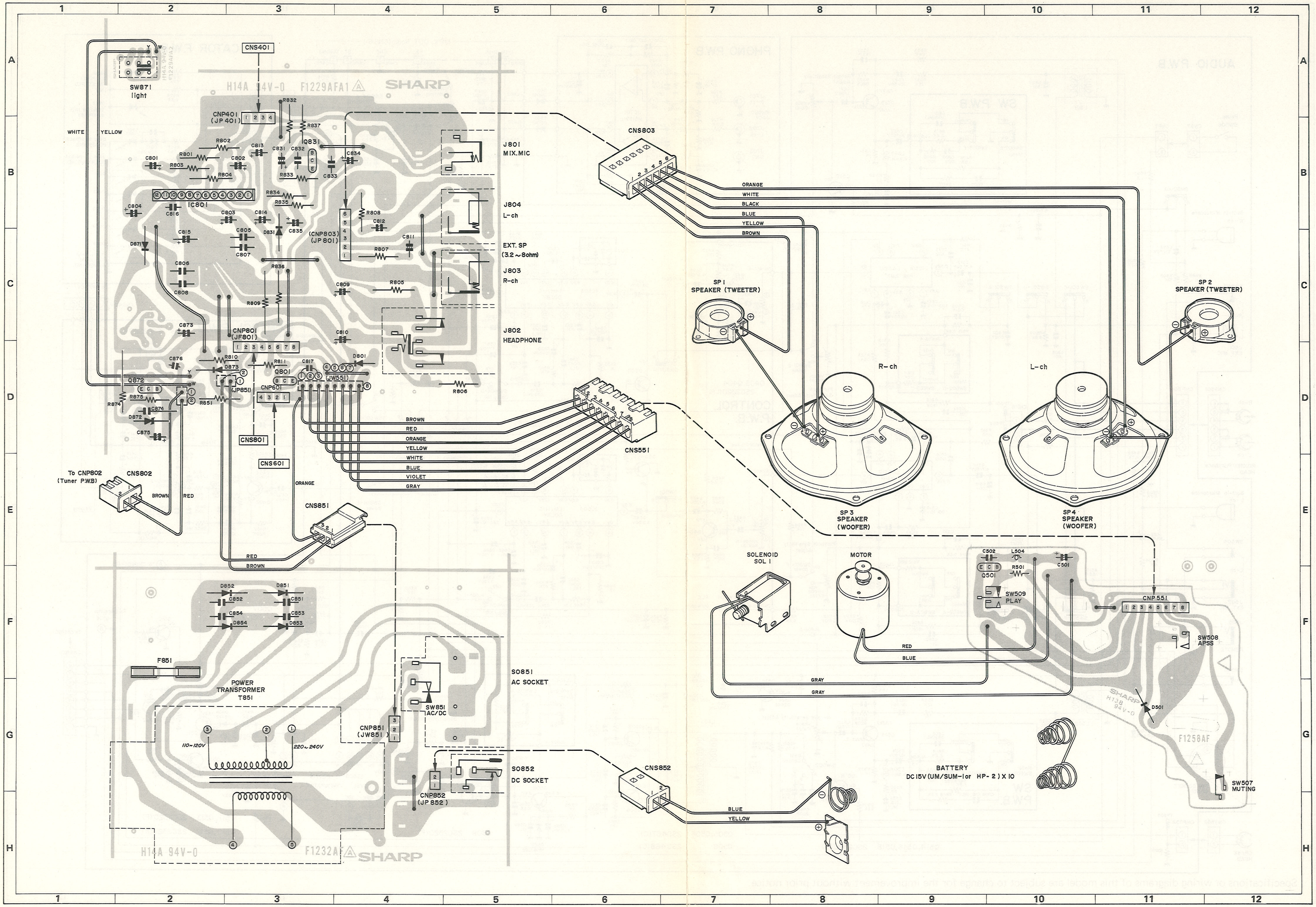
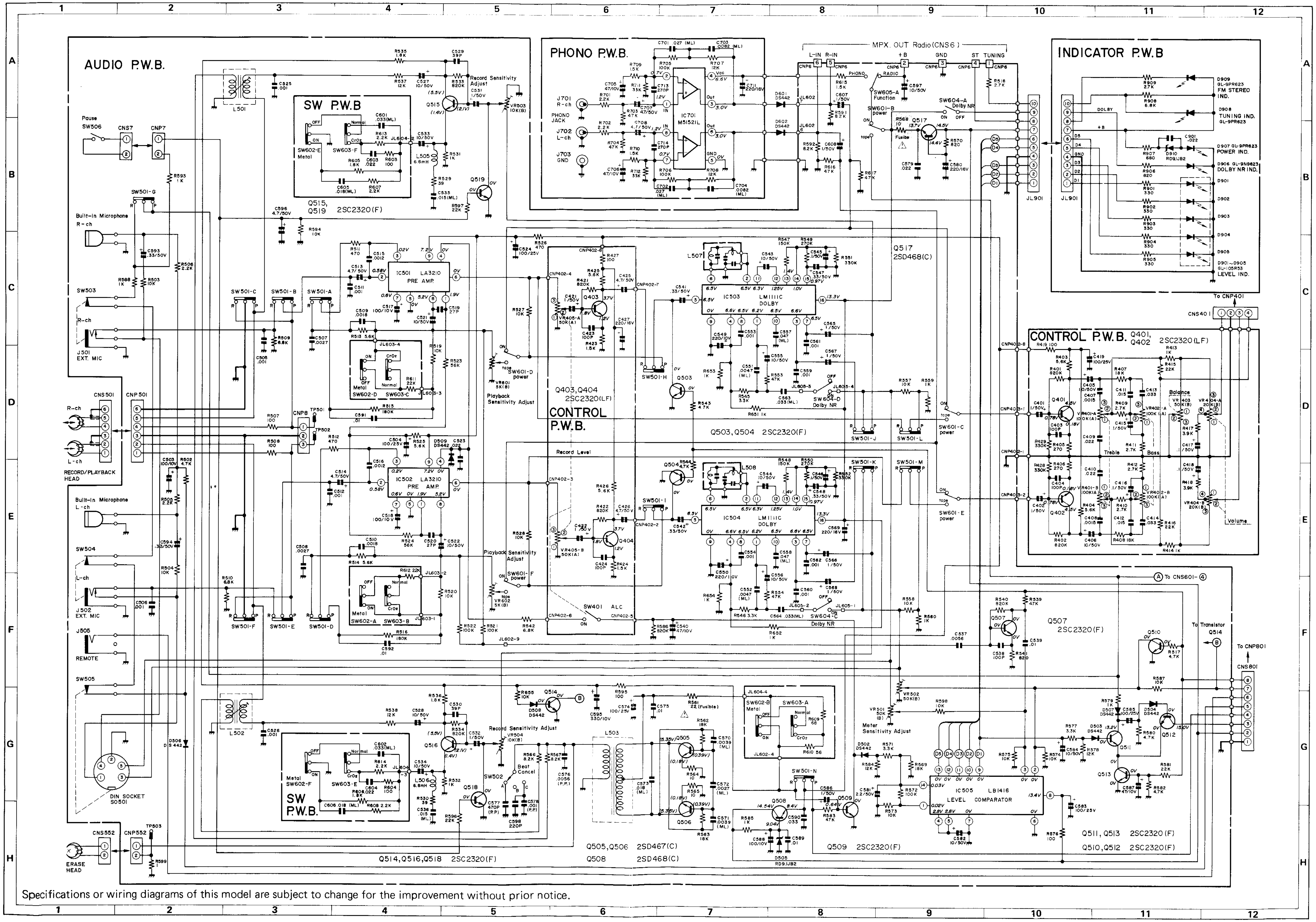
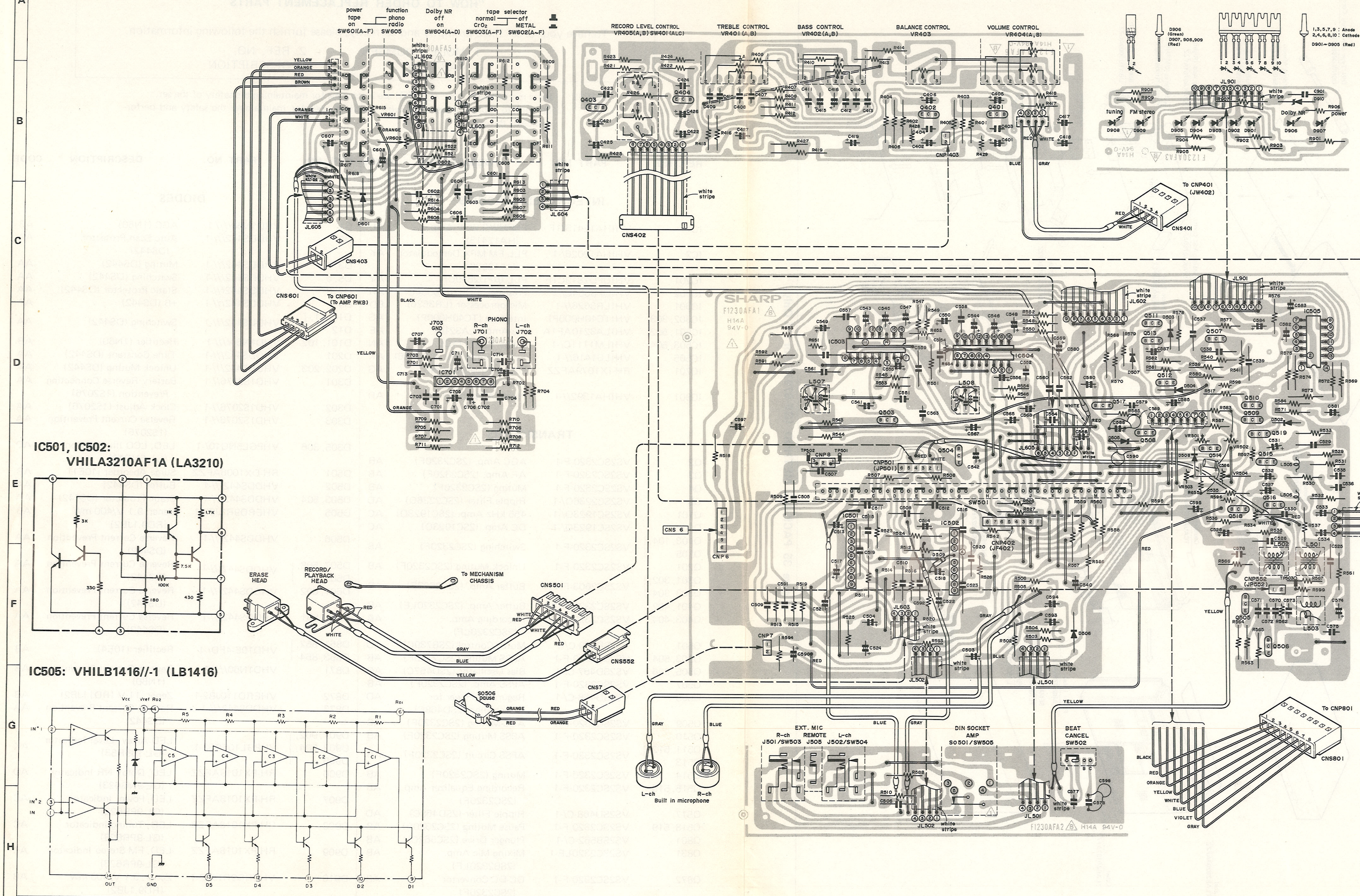

SW871 light
CNS401
CNP401 (JP401)
WHITE
YELLOW
IC801
CNS803
ORANGE
WHITE
BLACK
BLUE
YELLOW
BROWN
J801 MIX.MIC
J804 L-ch
EXT. SP (3.2～8ohm)
J803 R-ch
J802 HEADPHONE
(CNP803) (JP801)
CNP801 (JP801)
Q831
Q801
Q872
CNP601
(JW551)
(JP851)
CNS551
CNS801
CNS601
To CNP802 (Tuner P.W.B)
CNS802
BROWN
RED
ORANGE
VIOLET
GRAY
CNS851
SP1 SPEAKER (TWEETER)
SP2 SPEAKER (TWEETER)
R-ch
L-ch
SP3 SPEAKER (WOOFER)
SP4 SPEAKER (WOOFER)
SOLENOID SOL1
MOTOR
Q501
SW509 PLAY
CNP551
SW508 APSS
D501
SW507 MUTING
F1258AF
BATTERY DC15V (UM/SUM-1 or HP-2) X 10
F851
POWER TRANSFORMER T851
110～120V
220～240V
SO851 AC SOCKET
SW851 AC/DC
CNP851 (JW851)
SO852 DC SOCKET
CNP852 (JP852)
CNS852
H14A 94V-0
F1229AFA1
F1232AF
SHARP

Figure 29 WIRING SIDE OF PRINTED WIRING BOARD (2/3)


AUDIO P.W.B.
SW P.W.B
PHONO P.W.B.
INDICATOR P.W.B
CONTROL P.W.B.
CONTROL P.W.B. Q401, Q402 2SC2320(LF)
MPX. OUT Radio(CNS6)
IC501 LA3210 PRE AMP
IC502 LA3210 PRE AMP
IC503 LM1111C DOLBY
IC504 LM1111C DOLBY
IC505 LB1416 LEVEL COMPARATOR
IC701 M5152IL
Q515, Q519 2SC2320(F)
Q403,Q404 2SC2320(LF)
Q503,Q504 2SC2320(F)
Q517 2SD468(C)
Q507 2SC2320(F)
Q505,Q506 2SD467(C)
Q508 2SD468(C)
Q509 2SC2320(F)
Q511, Q513 2SC2320(F)
Q510,Q512 2SC2320(F)
Q514,Q516,Q518 2SC2320(F)
Pause SW506
Built-in Microphone R-ch
Built-in Microphone L-ch
J501 EXT. MIC
J502 EXT. MIC
J505 REMOTE
RECORD/PLAYBACK HEAD
ERASE HEAD
DIN SOCKET SO501
J701 R-ch
J702 L-ch
J703 GND
PHONO JACK
Record Sensitivity Adjust
Playback Sensitivity Adjust
Record Level
Meter Sensitivity Adjust
Beat Cancel
SW401 ALC
Dolby NR
Balance
Treble
Bass
Volume
D909 GL-9PR623 FM STEREO IND.
D908 TUNING IND. GL-9PR623
D907 GL-9PR623 POWER IND.
D906 GL-9NG623 DOLBY NR IND.
D901~D905 GL-105R53 LEVEL IND.
To CNP401
To CNS601-④
To Transistor Q514
To CNP801

Specifications or wiring diagrams of this model are subject to change for the improvement without prior notice.

Figure 31 SCHEMATIC DIAGRAM (3/3)


1
2
3
4
5
6
7
8
9
10
11
12
A
B
C
D
E
F
G
H
power
tape
on
SW601(A~F)
function
phono
radio
SW605
Dolby NR
off
on
SW604(A~D)
tape selector
normal
CrO2
SW603(A~F)
off
METAL
SW602(A~F)
RECORD LEVEL CONTROL
VR405(A,B) SW401 (ALC)
TREBLE CONTROL
VR401 (A,B)
BASS CONTROL
VR402 (A,B)
BALANCE CONTROL
VR403
VOLUME CONTROL
VR404(A,B)
D906 (Green)
D907, 908, 909 (Red)
1,3,5,7,9 : Anode
2,4,6,8,10 : Cathode
D901~D905 (Red)
YELLOW
ORANGE
RED
BROWN
WHITE
white stripe
JL605
CNS403
CNS601
To CNP601 (To AMP. P.W.B)
JL604
CNS402
CNP403
To CNP401 (JW402)
CNS401
tuning
FM stereo
Dolby NR
power
JL901
BLACK
PHONO
R-ch J701
L-ch J702
J703 GND
IC701
SHARP
JL602
IC503
IC504
IC505
JL603
CNP501 (JP501)
SW501
IC501
IC502
CNP402 (JF402)
CNS 6
CNP6
CNP552 (JP552)
CNP7
JL502
JL501
ERASE HEAD
RECORD/PLAYBACK HEAD
To MECHANISM CHASSIS
CNS501
CNS552
CNS7
S0506 pause
GRAY
BLUE
L-ch
R-ch
Built in microphone
EXT. MIC
R-ch J501/SW503
REMOTE J505
L-ch J502/SW504
DIN SOCKET AMP
S0501/SW505
BEAT CANCEL SW502
To CNP801
CNS801
VIOLET
F1230AFA2 H14A 94V-0
Vcc
Vref
Ro2
Ro1
IN⁺1
IN⁺2
IN
OUT
GND
D5
D4
D3
D2
D1

IC501, IC502: VHILA3210AF1A (LA3210)

IC505: VHILB1416//-1 (LB1416)

Figure 33 WIRING SIDE OF PRINTED WIRING BOARD (3/3)

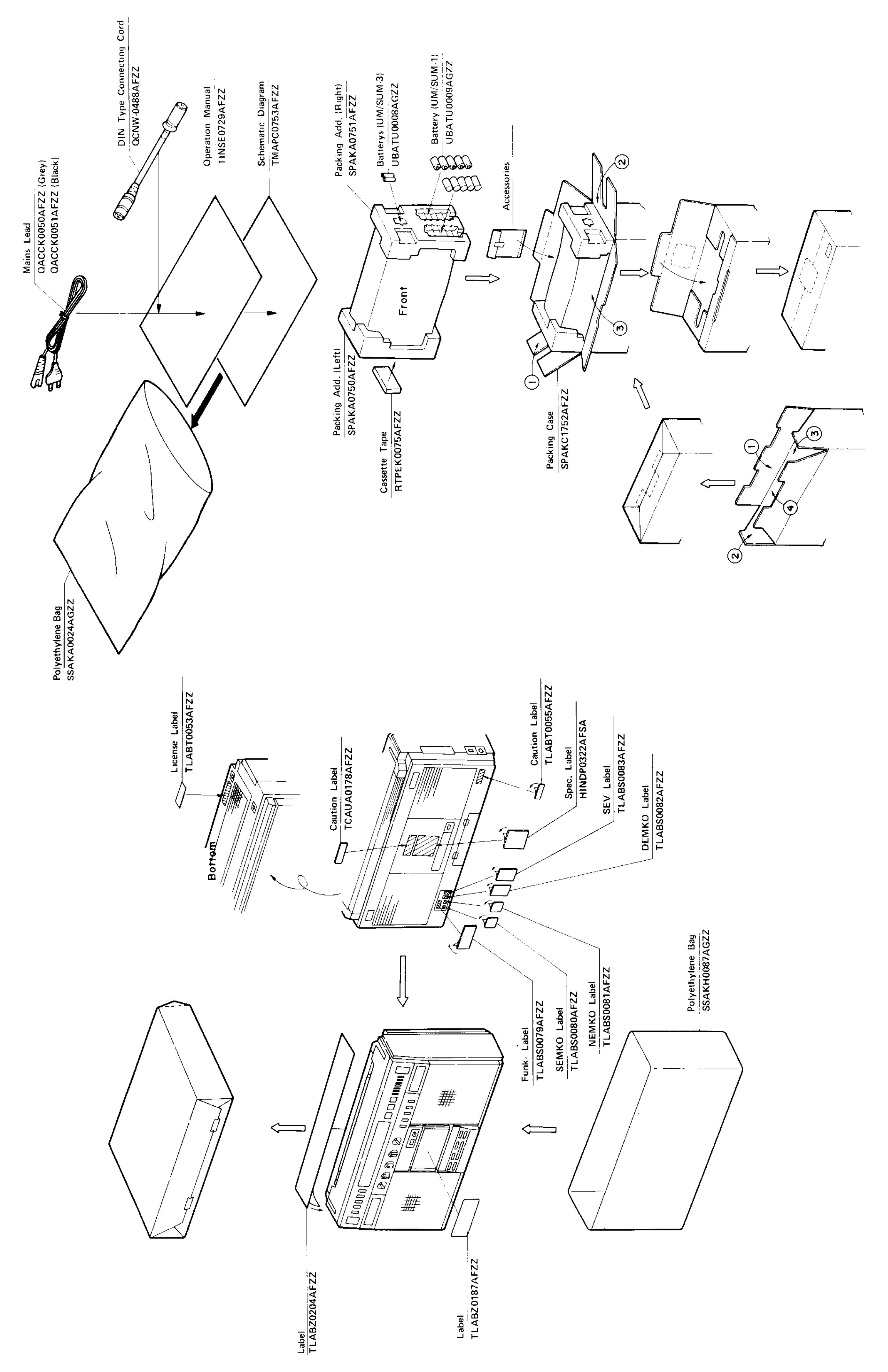

Mains Lead
QACCK0050AFZZ (Grey)
QACCK0051AFZZ (Black)
DIN Type Connecting Cord
QCNW-0488AFZZ
Operation Manual
TINSE0729AFZZ
Schematic Diagram
TMAPC0753AFZZ
Packing Add. (Right)
SPAKA0751AFZZ
Batterys (UM/SUM-3)
UBATU0008AGZZ
Battery (UM/SUM-1)
UBATU0009AGZZ
Accessories
Front
Packing Add. (Left)
SPAKA0750AFZZ
Cassette Tape
RTPEK0075AFZZ
Packing Case
SPAKC1752AFZZ
①
②
③
④
Polyethylene Bag
SSAKA0024AGZZ
License Label
TLABT0053AFZZ
Bottom
Caution Label
TCAUA0178AFZZ
Caution Label
TLABT0055AFZZ
Spec. Label
HINDP0322AFSA
SEV Label
TLABS0083AFZZ
DEMKO Label
TLABS0082AFZZ
Funk- Label
TLABS0079AFZZ
SEMKO Label
TLABS0080AFZZ
NEMKO Label
TLABS0081AFZZ
Polyethylene Bag
SSAKH0087AGZZ
Label
TLABZ0204AFZZ
Label
TLABZ0187AFZZ

Figure 35 PACKING METHOD (GF-9797E For UK Only)

REPLACEMENT PARTS LIST

"HOW TO ORDER REPLACEMENT PARTS"

To have your order filled promptly and correctly, please furnish the following information.

1. MODEL NUMBER
2. REF. NO.
3. PART NO.
4. DESCRIPTION

NOTES: Parts marked with "⚠" (▨) are important for maintaining the safety of the set.
Be sure to replace these parts with specified ones for maintaining the safety and performance of the set.

INTEGRATED CIRCUITS

REF. NO.	PART NO.	DESCRIPTION	CODE
IC1	VHIHA12413/1F	FM/MW/LW IF Amp. (HA12413)	AL
IC2	VHIHA12026/-1	PLL FM MPX Demodulator (HA12026)	AK
IC201	VHIUPD2819C1F	PLL (μPD2819C)	AY
IC202	VHIUPB554C/-1	Prescaler, ECL (μPB554C)	AR
IC301	VHILR3626//-1	Microprocessor (LR3626)	BD
IC302, 303	VHITC40H000P1	Interface (TC40H000P)	AG
IC501, 502	VHILA3210AF1A	Pre-Amp. (LA3210)	AE
IC503, 504	VHILM1111C/-1	Dolby (LM1111C)	AN
IC505	VHILB1416//-1	Level Comparator (LB1416)	AK
IC701	RH-IX1079AFZZ	Phono Equalizer Amp. (M51521L)	AG
IC801	VHIHA1392//-1	Power Amp. (HA1392)	AR

TRANSISTORS

REF. NO.	PART NO.	DESCRIPTION	CODE
Q2	VS2SC2320-F-1	AGC Amp. (2SC2320F)	AB
Q3	VS2SC2320-F-1	AF Amp. (2SC2320F)	AB
Q4	VS2SC2320-F-1	Muting (2SC2320F)	AB
Q5	VS2SC2236O/-1	Ripple Filter (2SC2236O)	AD
Q101	VS2SC1923O/-1	455 kHz Amp. (2SC1923O)	AC
Q102	VS2SC1923O/-1	DC Amp. (2SC1923O)	AC
Q103, 104, Q105	VS2SC2320-F-1	Switching (2SC2320F)	AB
Q201	VS2SC2320-F-1	Unlock Muting (2SC2320F)	AB
Q301, 302, Q303, 304	VS2SC2603-F-1	Buffer Amp. (2SC2603F)	AB
Q401, 402	VS2SC2320LF-1	Buffer Amp. (2SC2320LF)	AB
Q403, 404	VS2SC2320LF-1	Recording Amp. (2SC2320LF)	AB
Q501	VS2SB739-C/-1	Motor Control (2SB739C)	AD
Q503, 504	VS2SC2320-F-1	APSS Muting (2SC2320F)	AB
Q505, 506	VS2SD467-C/-1	Bias Oscillator (2SD467C)	AC
Q507	VS2SC2320-F-1	APSS Amp. (2SC2320F)	AB
Q508	VS2SD468-C/-1	Regurated Power for Recording (2SD468C)	AD
Q509	VS2SC2320-F-1	ALC Muting (2SC2320F)	AB
Q510	VS2SC2320-F-1	APSS Muting (2SC2320F)	AB
Q511, 512, Q513	VS2SC2320-F-1	APSS Circuit (2SC2320F)	AB
Q514	VS2SC2320-F-1	Muting (2SC2320F)	AB
Q515, 516	VS2SC2320-F-1	Recording Equalizer Amp. (2SC2320F)	AB
Q517	VS2SD468-C/-1	Ripple Filter (2SD468C)	AD
Q518, 519	VS2SC2320-F-1	Pause Muting (2SC2320F)	AB
Q801	VS2SB562-C/-1	Plunger Drive (2SC562C)	AB
Q831	VS2SC2320LF-1	Mixing Mic Amp. (2SB2320LF)	AB
Q872	VS2SC2320-F-1	DC-DC Convertor (2SC2320F)	AB

DIODES

REF. NO.	PART NO.	DESCRIPTION	CODE
D1	VHD1N60////-1	AGC (1N60)	AB
D2	VHDDS442///-1	Auto Scan Protector (DS442)	AA
D3, 4	VHDDS442///-1	Muting (DS442)	AA
D5, 6	VHDDS442///-1	Switching (DS442)	AA
D7, 8	VHDDS442///-1	Static Protector (DS442)	AA
D9	VHDDS442///-1	+B (DS442)	AA
D10, 11, D12	VHDDS442///-1	Switching (DS442)	AA
D101, 102	VHD1N60////-1	Rectifier (1N60)	AB
D201	VHDDS442///-1	Time Constant (DS442)	AA
D202, 203	VHDDS442///-1	Unlock Muting (DS442)	AA
D301	VHD1S2076//-1	Battery Reverse Connecting Prevention (1S2076)	AA
D302	VHD1S2076//-1	Clock Adjust (1S2076)	AA
D303	VHD1S2076//-1	Reverse Current Prevention (1S2076)	AA
D305, 306	VHPGL5NG10/-1	LED, LCD Illumination (GL-5NG10)	AD
D501	RH-DX1006AFZZ	Surge Absorber (10E1)	AB
D502	VHDDS442///-1	Buffer (DS442)	AA
D503, 504	VHDDS442///-1	Static Protector (DS442)	AA
D505	VHERD9R1JB2-1	Zener, 9.1 V/400 mW (RD9.1JB2)	AB
D506	VHDDS442///-1	Reverse Current Prevention (DS442)	AA
D507, 508, D509	VHDDS442///-1	Reverse Current Prevention (DS442)	AA
D601, 602	VHDDS442///-1	Reverse Current Prevention (DS442)	AA
D801, 831	VHDDS442///-1	Reverse Current Prevention (DS442)	AA
D851, 852, D853, 854	VHD10E-4FD/-1	Rectifier (10E4)	AB
D871	VHD1N60////-1	Reverse Current Prevention (1N60)	AB
D872	VHERD110JB2-1	Zener, 11 V (RD11JB2)	AB
D873	VHDDS442///-1	Reverse Current Prevention (DS442)	AA
D901, 902, D903, 904, D905	VHPGL105R53-1	LED Array, Level Indicator (GL-105R53)	AK
D906	RH-PX1019AFZZ	LED, Dolby NR Indicator (GL-9NG623)	AD
D907	RH-PX1018AFZZ	LED, Power Indicator (GL-9PR623)	AC
D908	RH-PX1018AFZZ	LED, Tuning Indicator (GL-9PR623)	AC
D909	RH-PX1018AFZZ	LED, FM Stereo Indicator (GL-9PR623)	AC
D910	VHERD9R1JB2-1	Zener, 9.1 V/400 mW (RD9.1JB2)	AB

PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	CODE
ZD1	VHEEZ-056//1F	Zener, 5.6 V/400 mW (EZ-056)	AB

TRANSFORMERS

T1	RCILI0267AFZZ	Filter, 450 kHz	AC
T2	RCILI0283AFZZ	Filter, 10.7 MHz	AD
△T851	RTRNP0755AFZZ	Power Transformer	AW

FILTERS

CF1, 102	RFILA0062AFZZ	450 kHz ±1 kHz Matched Pair	AG
CF2, 3	RFILF0084AFZZ	10.7 MHz ±30 kHz	AD
CF101	RFILP0002AFZZ	10.7 MHz ±30 kHz	AP
M1, 2	RMPTA0113AFZZ	Low-pass Filter, 38 kHz Trap	AD

COILS

L1	RCILA0516AFZZ	MW/LW Bar Antenna	AL
L2	VP-CH101K0000	Choke, 100μH	AB
L201	VP-CH221K0000	DC-DC Choke, 220μH	AB
L202	VP-CH470K0000	PLL +B Choke, 47μH	AB
L203	VP-CH470K0000	Choke, 47μH	AB
L204	VP-CH101K0000	Choke, 100μH	AB
L205	VP-CH100K0000	Choke, 10μH	AB
L501, 502	RCILB0544AFZZ	Bias Step-up	AE
L503	RCILB0543AFZZ	Bias Oscillator	AF
△L504	RCILF0014AGZZ	Motor Noise Suppresor, 47μH	AC
L505, 506	RCILZ0084AFZZ	Recording Equalizer 6.8 mH	AD
L507, 508	RCILL0066AFZZ	Trap, 19 kHz/85 kHz	AH

CONTROLS

VR1	RVR-M0325AFZZ	10K ohm (B), VCO Adjustment	AB
VR101	RVR-M0328AFZZ	50K ohm (B), Auto Stop Level Adjustment	AB
VR401(A, B), VR402(A, B), VR403, VR404(A, B), VR405(A, B)	RVR-Z0103AFZZ	Variable Resistor Unit; VR401(A, B): 100K ohm(A), Treble VR402(A, B): 100K ohm(A), Bass VR403: 50K ohm(B), Balance VR404(A, B): 20K ohm(B), Volume VR405(A, B): 50K ohm(A), Recording Level with ALC Switch (SW401)	AV
VR501, 502	RVR-M0172AFZZ	50K ohm(B), -Meter Sensitivity Adjustment	AB
VR503, 504	RVR-M0325AFZZ	10K ohm(B), Record Sensitivity Adjustment	AB
VR601, 602	RVR-M0324AFZZ	5K ohm(B), Playback Sensitivity Adjustment	AB

CRYSTAL

XL201	RCRSB0068AFZZ	5,760 MHz, (Oscillation Frequency)	AK
XL301	RCRSP0051AFZZ	32,768 kHz, (Oscillation Frequency)	AK

REF. NO.	PART NO.	DESCRIPTION	CODE

TRIMMERS

TC1	RTO-H1071AFZZ	PLL	AC
TC2	RTO-H1067AFZZ	LW Antenna	AD
TC201	RTO-H1067AFZZ	MW Antenna	AD
TC301	RTO-H1067AFZZ	Clock Reference Frequency Adjustment	AD

ELECTROLYTIC CAPACITORS

C4	RC-EZA336AF1C	33MFD, 16V, ±20%	AB
C9	RC-EZA107AF1A	100MFD, 10V, ±20%	AC
C17	VCEALA1HW474M	.47MFD, 50V, ±20%	AB
C21	RC-EZA107AF1A	100MFD, 10V, ±20%	AC
C22	RC-EZA106AF1H	10MFD, 50V, ±20%	AB
C23	RC-EZA105AF1H	1MFD, 50V, ±20%	AB
C25	RC-EZA106AF1H	10MFD, 50V, ±20%	AB
C26	VCEALA1HW104M	.1MFD, 50V, ±20%	AB
C28	RC-EZA225AF1H	2.2MFD, 50V, ±20%	AB
C29	VCEALA1HW334M	.33MFD, 50V, ±20%	AB
C30	RC-EZA105AF1H	1MFD, 50V, ±20%	AB
C33	VCEALA1HW474M	.47MFD, 50V, ±20%	AB
C34	RC-EZS108AF1C	1000MFD, 16V, ±20%	AB
C36	RC-EZV107AF1A	100MFD, 10V, ±20%	AC
C37	RC-EZA336AF1C	33MFD, 16V, ±20%	AB
C38	VCEALA1HW104M	.1MFD, 50V, ±20%	AB
C42	RC-EZA106AF1H	10MFD, 50V, ±20%	AB
C110	RC-EZA225AF1H	2.2MFD, 50V, ±20%	AB
C111	RC-EZA336AF1C	33MFD, 16V, ±20%	AB
C202	VCEALA1HW224M	.22MFD, 50V, ±20%	AB
C203	VCEALA1HW104M	.1MFD, 50V, ±20%	AB
C204	VCE9AA1EW225M	2.2MFD, 25V, ±20%, Non-polar	AC
C207	RC-EZA106AF1H	10MFD, 50V, ±20%	AB
C208	VCEALA1HW224M	.22MFD, 50V, ±20%	AB
C209	RC-EZA476AF1H	47MFD, 50V, ±20%	AB
C215	RC-EZA336AF1C	33MFD, 16V, ±20%	AB
C302	VCSATU1VF105M	1MFD, 35V, ±20%, Tantalum	AC
C303	VCEAAU1CW106Y	10MFD, 16V, +50 –10%	AB
C304	RC-EZS336AF1C	33MFD, 16V, ±20%	AB
C305, 306, C309	VCEAAU1CW106Y	10MFD, 16V, +50 –10%	AB
C401, 402	RC-EZA105AF1H	1MFD, 50V, ±20%	AB
C405, 406	RC-EZA106AF1H	10MFD, 50V, ±20%	AB
C415, 416, C417, 418	VCEALA1HC104M	.1MFD, 50V, ±20%	AB
C419	RC-EZA107AF1E	100MFD, 25V, ±20%	AC
C421, 422	RC-EZA105AF1H	1MFD, 50V, ±20%	AB
C425, 426	RC-EZA475AF1H	4.7MFD, 50V, ±20%	AB
C427	RC-EZV227AF1C	220MFD, 16V, ±20%	AB
△C501	RC-EZS227AF1E	220MFD, 25V, ±20%	AB
C503	RC-EZA107AF1A	100MFD, 10V, ±20%	AB
C504	RC-EZA107AF1E	100MFD, 25V, ±20%	AC
C513, 514	RC-EZA475AF1H	4.7MFD, 50V, ±20%	AB
C517, 518	RC-EZA107AF1A	100MFD, 10V, ±20%	AB
C521, 522	RC-EZA106AF1H	10MFD, 50V, ±20%	AB
C524	RC-EZA107AF1E	100MFD, 25V, ±20%	AB
C527, 528	RC-EZA106AF1H	10MFD, 50V, ±20%	AB
C531, 532	VCEAAU1HW105A	1MFD, 50V, ±20%	AB
C533, 534	RC-EZA106AF1H	10MFD, 50V, ±20%	AB
C540	RC-EZA476AF1A	47MFD, 10V, ±20%	AB
C541, 542	VCEALA1HC334M	.33MFD, 50V, ±20%	AB

PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	CODE
C543, 544	RC-EZA106AF1H	10MFD, 50V, ±20%	AB
C545, 546	VCEALA1HC104M	.1MFD, 50V, ±20%	AB
C547, 548	VCEALA1HC334M	.33MFD, 50V, ±20%	AB
C549, 550	RC-EZA227AF1A	220MFD, 10V, ±20%	AB
C555, 556	RC-EZA106AF1H	10MFD, 50V, ±20%	AB
C565, 566, C567, 568	RC-EZA105AF1H	1MFD, 50V, ±20%	AB
C569	RC-EZV227AF1C	220MFD, 16V, ±20%	AB
C574	RC-EZA107AF1E	100MFD, 25V, ±20%	AC
C580	RC-EZV227AF1C	220MFD, 16V, ±20%	AB
C581	VCEALA1HW225M	2.2MFD, 50V, ±20%	AB
C582	RC-EZA106AF1H	10MFD, 50V, ±20%	AB
C583	RC-EZA107AF1E	100MFD, 25V, ±20%	AC
C584	RC-EZA106AF1H	10MFD, 50V, ±20%	AB
C585	RC-EZA107AF1E	100MFD, 25V, ±20%	AC
C586	VCEAAU1HW105A	1MFD, 50V, ±20%	AB
C587	RC-EZA476AF1A	47MFD, 10V, ±20%	AB
C588	RC-EZA107AF1A	100MFD, 10V, ±20%	AB
C593, 594	VCEALA1HC334M	.33MFD, 50V, ±20%	AB
C595	RC-EZV337AF1A	330MFD, 10V, ±20%	AB
C596	RC-EZA475AF1H	4.7MFD, 50V, ±20%	AB
C597	RC-EZV106AF1H	10MFD, 50V, ±20%	AB
C607, 608	RC-EZA105AF1H	1MFD, 50V, ±20%	AB
C705, 706	RC-EZA476AF1A	47MFD, 10V, ±20%	AB
C707, 708	RC-EZA475AF1H	4.7MFD, 50V, ±20%	AB
C711	RC-EAV227AF1C	220MFD, 16V, ±20%	AC
C801, 802, C803, 804	RC-EZV107AF1A	100MFD, 10V, ±20%	AB
C809, 810	RC-EZV108AF1A	1000MFD, 10V, ±20%	AD
C811, 812	VCE9AV1EW475M	4.7MFD, 25V, ±20%, Non-polar	AC
C813	RC-EZV107AF1E	100MFD, 25V, ±20%	AC
C814	RC-EZV475AF1H	4.7MFD, 50V, ±20%	AB
C815	RC-EZW338AF1E	3300MFD, 25V, ±20%	AH
C831	VCEALV1HW334M	.33MFD, 50V, ±20%	AB
C834	RC-EZV475AF1H	4.7MFD, 50V, ±20%	AB
C835	RC-EZV226AF1E	22MFD, 25V, ±20%	AB
C873	RC-EZV477AF1E	470MFD, 25V, ±20%	AB
C875	RC-EZV476AF1H	47MFD, 50V, ±20%	AB

CAPACITORS

(Unless otherwise specified, capacitors are of Semiconductor type.)

C1	VCTYPA1EX333M	.033MFD, 25V, ±20%	AA
C2	VCTYPA1EX103N	.01MFD, 25V, ±30%	AA
C3, 5, C6	VCTYPA1EX103M	.01MFD, 25V, ±20%	AA
C7	VCQYKA1HM223M	.022MFD, 50V, ±20%, Mylar	AA
C8	VCTYPA1EX223M	.022MFD, 25V, ±20%	AA
C10	VCTYAT1EX103K	.01MFD, 25V, ±10%	AA
C11	VCTYPA1EX333M	.033MFD, 25V, ±20%	AA
C12	VCTYPA1EX103M	.01MFD, 25V, ±20%	AA
C13	VCCSAT1HL270J	27PF, 50V, ±5%, Ceramic	AA
C14	VCQSMA1HL471J	470PF, 50V, ±5%, Polystyrene Film	AB
C15	VCTYAT1EX103K	.01MFD, 25V, ±10%	AA
C16	VCCSPA1HL471J	470PF, 50V, ±5%, Ceramic	AA
C18	VCTYPA1EX822J	.0082MFD, 25V, ±5%	AB
C19	VCTYPA1EX273K	.027MFD, 25V, ±10%	AA
C20	VCKYAT1HB102M	.001MFD, 50V, ±20%,Ceramic	AA
C24	VCTYPA1EX223M	.022MFD, 25V, ±20%	AA
C27	VCTYPA1EX473M	.047MFD, 25V, ±20%	AB
C31, 32	VCTYAT1HV332K	.0033MFD, 50V, ±10%	AA

REF. NO.	PART NO.	DESCRIPTION	CODE
C35	VCTYAT1CY223N	.022MFD, 16V, ±30%	AA
C39, 40	VCTYPU1EX102M	.001MFD, 25V, ±20%	AA
C41	VCTYPA1EX333M	.033MFD, 25V, ±20%	AA
C43	VCCSPU1HL151J	150PF, 50V, ±5%, Ceramic	AA
C101	VCCSAT1HL100J	10PF, 50V, ±5%, Ceramic	AA
C102	VCCSAT1HL101J	100PF, 50V, ±5%, Ceramic	AA
C103	VCTYAT1EX103K	.01MFD, 25V, ±10%	AA
C104	VCTYPA1EX103M	.01MFD, 25V, ±20%	AA
C105	VCTYAT1EX103K	.01MFD, 25V, ±10%	AA
C108	VCTYAT1CY223N	.022MFD, 16V, ±30%	AA
C109	VCTYPA1EX333M	.033MFD, 25V, ±20%	AA
C201	VCCSPA1HL331J	330PF, 50V, ±5%, Ceramic	AA
C205	VCCSPA1HL820J	82PF, 50V, ±5%, Ceramic	AA
C206, 210, C211	VCTYPA1EX103M	.01MFD, 25V, ±20%	AA
C212	VCCSPA1HL150J	15PF, 50V, ±5%, Ceramic	AA
C213	VCTYPA1EX332J	.0033MFD, 25V, ±5%	AB
C214	VCCSPA1HL151J	150PF, 50V, ±5%, Ceramic	AA
C301	VCCSPU1HL220J	22PF, 50V, ±5%, Ceramic	AA
C307, 308	VCTYPU1EX333M	.033MFD, 25V, ±20%	AB
C403, 404	VCCSPA1HL101J	100PF, 50V, ±5%, Ceramic	AA
C407, 408	VCTYPA1EX152K	.0015MFD, 25V, ±10%	AA
C409, 410	VCTYPA1EX223K	.022MFD, 25V, ±10%	AA
C411, 412	VCTYPA1EX153K	.015MFD, 25V, ±10%	AA
C413, 414	VCTYPA1EX333K	.033MFD, 25V, ±10%	AB
C423, 424	VCCSPA1HL101J	100PF, 50V, ±5%, Ceramic	AA
C502	VCTYPU1EX563M	.056MFD, 25V, ±20%	AB
C505, 506	VCKYAT1HB102K	.001MFD, 50V, ±10%, Ceramic	AA
C507, 508	VCTYAT1HV272K	.0027MFD, 50V, ±10%	AA
C509, 510	VCTYAT1HV182K	.0018MFD, 50V, ±10%	AA
C511, 512	VCKYAT1HB102K	.001MFD, 50V, ±10%, Ceramic	AA
C515, 516	VCKYAT1HD122M	.0012MFD, 50V, ±20%, Ceramic	AA
C519, 520	VCCSAT1HL270J	27PF, 50V, ±5%, Ceramic	AA
C523	VCTYAT1CY223N	.022MFD, 16V, ±30%	AA
C525, 526	VCKYAT1HB102K	.001MFD, 50V, ±10%, Ceramic	AA
C529, 530	VCCSAT1HL390J	39PF, 50V, ±5%, Ceramic	AA
C535, 536	VCQYKA1HM153J	.015MFD, 50V, ±5%, Mylar	AB
C537	VCTYAT1EX562M	.0056MFD, 25V, ±20%	AA
C538	VCCSAT1HL101J	100PF, 50V, ±5%, Ceramic	AA
C539	VCTYAT1EX103K	.01MFD, 25V, ±10%	AA
C551, 552	VCQYKA1HM472J	.0047MFD, 50V, ±5%, Mylar	AB
C553, 554	VCKTAT1HB102K	.001MFD, 50V, ±10%, Ceramic	AA
C557, 558	VCQYKU1HM473J	.047MFD, 50V, ±5%, Mylar	AB
C559, 560, C561, 562	VCKYAT1HB102K	.001MFD, 50V, ±10%, Ceramic	AA
C563, 564	VCQYKA1HM333J	.033MFD, 50V, ±5%, Mylar	AB
C570, 571	VCQYKA1HM392K	.0039MFD, 50V, ±10%, Mylar	AA
C572	VCQYKA1HM272K	.0027MFD, 50V, ±10%, Mylar	AA
C573	VCQYKA1HM183J	.018MFD, 50V, ±5%, Mylar	AB
C575	VCKZPA1HF103Z	.01MFD, 50V, +80 –20%, Ceramic	AA
C576	VCQPKQ2AA562J	.0056MFD, 100V, ±5%, Polypropylene	AB
C577	VCQPKQ2AA471J	470PF, 100V, ±5%, Polypropylene	AB
C578	VCQPKQ2AA102J	.001MFD, 100V, ±5%, Polypropylene	AB

PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	CODE
C579	VCTYPU1EX223M	.022MFD, 25V, ±20%	AA
C589	VCTYPU1EX103M	.01MFD, 25V, ±20%	AA
C590	VCTYPU1EX333M	.033MFD, 25V, ±20%	AA
C591, 592	VCTYAT1EX103K	.01MFD, 25V, ±10%	AA
C598	VCCSPU1HL221J	220PF, 50V, ±5%, Ceramic	AA
C601, 602	VCQYKU1HM333J	.033MFD, 50V, ±5%, Mylar	AA
C603, 604	VCTYPA1EX223K	.022MFD, 25V, ±10%	AA
C605, 606	VCQYKA1HM183K	.018MFD, 50V, ±10%, Mylar	AA
C701, 702	VCQYKA1HM273J	.027MFD, 50V, ±5%, Mylar	AB
C703, 704	VCQYKA1HM822J	.0082MFD, 50V, ±5%, Mylar	AB
C713, 714	VCCSPA1HL271J	270PF, 50V, ±5%, Ceramic	AA
C805, 806, C807, 808, C816	VCTYPV1EX104M	.1MFD, 25V, ±20%	AB
C817	VCTYPV1EX473M	.047MFD, 25V, ±20%	AB
C832	VCQYKV1HM222K	.0022MFD, 50V, ±10%, Mylar	AA
C833	VCQYKV1HM103K	.01MFD, 50V, ±10%, Mylar	AB
△C851, 852, C853, 854	VCKZPV1HF104Z	.1MFD, 50V, +80 –20%, Ceramic	AC
C874	VCTYAT1CY223N	.022MFD, 16V, ±30%	AB
C876	VCQYKV1HM333M	.033MFD, 50V, ±20%, Mylar	AB
C901	VCTYAT1CY223N	.022MFD, 16V, ±30%	AA

RESISTORS

(Unless otherwise specified are 1/4W, ±5%, Carbon type.)

REF. NO.	PART NO.	DESCRIPTION	CODE
R1	VRD-ST2EE152J	1.5K ohm	AA
R2	VRD-ST2EE122J	1.2K ohm	
R3	VRD-ST2EE561J	560 ohm	
R4	VRD-ST2EE470J	47 ohm	
R5, 6	VRD-ST2EE103J	10K ohm	
R7	VRD-ST2EE331J	330 ohm	
R8	VRD-ST2EE103J	10K ohm	
R9	VRD-ST2EE100J	10 ohm	
R11	VRD-ST2EE470J	47 ohm	
R12	VRD-ST2EE222J	2.2K ohm	
R13	VRD-ST2EE393J	39K ohm	
R14	VRD-ST2EE333J	33K ohm	
R15, 16	VRD-ST2EE223J	22K ohm	
R17	VRD-ST2EE394J	390K ohm	
R18	VRD-ST2EE222J	2.2K ohm	
R19	VRD-ST2EE682J	6.8K ohm	
R20	VRD-ST2EE823J	82K ohm	
R21	VRD-ST2EE473J	47K ohm	
R22	VRD-ST2EE183J	18K ohm	
R23	VRD-ST2EE271J	270 ohm	
R24	VRD-ST2EE102J	1K ohm	
R25	VRD-SU2EE562J	5.6K ohm	
R26, 27	VRD-ST2EE562J	5.6K ohm	
R28, 29, R30	VRD-ST2EE104J	100K ohm	
R32	VRD-ST2EE103J	10K ohm	
R33	VRD-ST2EE822J	8.2K ohm	
R34	VRD-ST2EE153J	15K ohm	
R35	VRD-ST2EE473J	47K ohm	
R36	VRD-ST2EE103J	10K ohm	
R37	VRS-PT3AB560J	56 ohm, 1W, ±5%, Metal Oxide Film	
R38	VRS-PT3AB680J	68 ohm, 1W, ±5%, Metal Oxide Film	
R39, 40	VRD-SU2EE224J	220K ohm	
R101	VRD-ST2EE103J	10K ohm	
R102	VRD-ST2EE273J	27K ohm	
R103	VRD-ST2EE122J	1.2K ohm	AA
R104	VRD-ST2EE682J	6.8K ohm	
R105	VRD-ST2EE822J	8.2K ohm	
R106	VRD-ST2EE103J	10K ohm	
R107	VRD-ST2EE182J	1.8K ohm	
R108	VRD-ST2EE332J	3.3K ohm	
R109	VRD-ST2EE183J	18K ohm	
R110	VRD-ST2EE332J	3.3K ohm	
R111	VRD-ST2EE102J	1K ohm	
R112	VRD-ST2EE332J	3.3K ohm	
R113	VRD-ST2EE333J	33K ohm	
R114	VRD-ST2EE101J	100 ohm	
R115	VRD-ST2EE154J	150K ohm	
R116	VRD-ST2EE823J	82K ohm	
R117	VRD-ST2EE104J	100K ohm	
R118	VRD-ST2EE153J	15K ohm	
R201, 202, R203	VRD-ST2EE103J	10K ohm	
R204	VRD-ST2EE472J	4.7K ohm	
R205	VRD-ST2EE152J	1.5K ohm	
R206	VRD-ST2EE472J	4.7K ohm	
R207	VRD-ST2EE334J	330K ohm	
R208	VRD-ST2EE474J	470K ohm	
R209	VRD-ST2EE562J	5.6K ohm	
R210	VRD-ST2EE152J	1.5K ohm	
R211	VRD-ST2EE102J	1K ohm	
R212, 213, R214	VRD-ST2EE103J	10K ohm	
R301	VRD-ST2EE562J	5.6K ohm	
R302, 303, R304	VRD-ST2EE223J	22K ohm	
R305	VRD-ST2EE224J	220K ohm	
R306, 307, R308	VRD-ST2EE564J	560K ohm	
R309, 310	VRD-ST2EE104J	100K ohm	
R311	VRD-ST2EE823J	82K ohm	
R312, 313, R314	VRD-ST2EE104J	100K ohm	
R315	VRD-ST2EE473J	47K ohm	
R316, 317	VRD-ST2EE224J	220K ohm	
R318	VRD-ST2EE101J	100 ohm	
R319, 320, R321	VRD-ST2EE104J	100K ohm	
R322	VRD-ST2EE123J	12K ohm	
R323	VRD-ST2EE473J	47K ohm	
R324	VRD-ST2EE471J	470 ohm	
R401, 402	VRD-ST2EE824J	820K ohm	
R403, 404	VRD-ST2EE562J	5.6K ohm	
R405, 406	VRD-ST2EE271J	270 ohm	
R407, 408	VRD-ST2EE183J	18K ohm	
R409, 410, R411, 412	VRD-ST2EE272J	2.7K ohm	
R413, 414	VRD-ST2EE102J	1K ohm	
R415, 416	VRD-ST2EE223J	22K ohm	
R417, 418	VRD-ST2EE392J	3.9K ohm	
R419	VRD-ST2EE101J	100 ohm	
R421, 422	VRD-ST2EE824J	820K ohm	
R423, 424	VRD-ST2EE152J	1.5K ohm	
R425, 426	VRD-ST2EE562J	5.6K ohm	
R427	VRD-ST2EE101J	100 ohm	
R428, 429	VRD-SU2EE334J	330K ohm	
R501	VRD-SU2EE152J	1.5K ohm	
R502	VRD-ST2EE472J	4.7K ohm	
R503, 504	VRD-ST2EE103J	10K ohm	
R505, 506	VRD-ST2EE222J	2.2K ohm	

PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	CODE
R507, 508	VRD-ST2EE101J	100 ohm	AA
R509, 510	VRD-ST2EE682J	6.8K ohm	
R511, 512	VRD-ST2EE471J	470 ohm	
R513, 514	VRD-ST2EE562J	5.6K ohm	
R515, 516	VRD-ST2EE184J	180K ohm	
R517	VRD-ST2EE472J	4.7K ohm	
R518	VRD-ST2EE272J	2.7K ohm	
R519, 520	VRD-ST2EE103J	10K ohm	
R521, 522	VRD-ST2EE104J	100K ohm	
R523, 524	VRD-ST2EE563J	56K ohm	
R525	VRD-ST2EE562J	5.6K ohm	
R526	VRD-ST2EE471J	470 ohm	
R527, 528	VRD-ST2EE103J	10K ohm	
R529, 530	VRD-ST2EE390J	39 ohm	
R531, 532	VRD-ST2EE102J	1K ohm	
R533	VRD-ST2EE824J	820K ohm	
R534	VRD-SU2EE824J	820K ohm	
R535, 536	VRD-ST2EE182J	1.8K ohm	
R537, 538	VRD-ST2EE123J	12K ohm	
R539	VRD-ST2EE473J	47K ohm	
R540	VRD-ST2EE824J	820K ohm	
R541	VRD-ST2EE821J	820 ohm	
R542	VRD-ST2EE682J	6.8K ohm	
R543, 544	VRD-ST2EE472J	4.7K ohm	
R545, 546	VRD-ST2EE332J	3.3K ohm	
R547, 548	VRD-ST2EE154J	150K ohm	
R549, 550	VRD-ST2EE274J	270K ohm	
R551, 552	VRD-ST2EE334J	330K ohm	
R553, 554	VRD-ST2EE473J	47K ohm	
R557, 558	VRD-ST2EE103J	10K ohm	
R559, 560	VRD-ST2EE102J	1K ohm	
△R561	VRG-ST2EF220J	22 ohm, 1/4W, ±5%, Fusible	AB
R562	VRD-SU2EE183J	18K ohm	AA
R563	VRD-ST2EE183J	18K ohm	
R564, 565	VRD-ST2EE100J	10 ohm	
R566, 567	VRD-ST2EE822J	8.2K ohm	
△R568	VRG-ST2EF100J	10 ohm, 1/4W, ±5%, Fusible	AB
R569	VRD-ST2EE183J	18K ohm	AA
R570	VRD-ST2EE821J	820 ohm	
R571	VRD-ST2EE332J	3.3K ohm	
R572	VRD-ST2EE104J	100K ohm	
R573, 574, R575	VRD-ST2EE103J	10K ohm	
R576	VRD-ST2EE101J	100 ohm	
R577	VRD-ST2EE332J	3.3K ohm	
R578	VRD-ST2EE123J	12K ohm	
R579	VRD-ST2EE102J	1K ohm	
R580	VRD-ST2EE472J	4.7K ohm	
R581	VRD-ST2EE223J	22K ohm	
R582	VRD-ST2EE472J	4.7K ohm	
R583	VRD-ST2EE473J	47K ohm	
R584	VRD-ST2EE123J	12K ohm	
R585	VRD-ST2EE102J	1K ohm	
R586	VRD-ST2EE824J	820K ohm	
R587	VRD-ST2EE103J	10K ohm	
R588	VRD-ST2EE102J	1K ohm	
R591, 592	VRD-ST2EE822J	8.2K ohm	
R593	VRD-ST2EE102J	1K ohm	
R594	VRD-ST2EE103J	10K ohm	
R595	VRD-ST2EE101J	100 ohm	
R596, 597	VRD-SU2EE223J	22K ohm	
R598	VRD-SU2EE103J	10K ohm	
R599	VRD-ST2EE1R0J	1 ohm	
R603, 604	VRD-ST2EE101J	100 ohm	
R605, 606	VRD-ST2EE182J	1.8K ohm	
R607, 608	VRD-ST2EE222J	2.2K ohm	AA
R609	VRD-ST2EE680J	68 ohm	
R610	VRD-ST2EE560J	56 ohm	
R611, 612	VRD-ST2EE223J	22K ohm	
R613, 614	VRD-ST2EE222J	2.2K ohm	
R615	VRD-ST2EE152J	1.5K ohm	
R616, 617	VRD-ST2EE473J	47K ohm	
R651, 652	VRD-ST2EE102J	1K ohm	
R653, 654	VRD-SU2EE102J	1K ohm	
R655	VRD-ST2EE103J	10K ohm	
R701, 702	VRD-ST2EE222J	2.2K ohm	
R703, 704	VRD-ST2EE473J	47K ohm	
R705, 706	VRD-ST2EE104J	100K ohm	
R707, 708	VRD-ST2EE123J	12K ohm	
R709, 710	VRD-ST2EE152J	1.5K ohm	
R711, 712	VRD-ST2EE333J	33K ohm	
R801, 802	VRD-ST2EE333J	33K ohm	
R803, 804	VRD-ST2EE820J	82 ohm	
R805, 806	VRD-ST2EE221J	220 ohm	
R807, 808	VRD-ST2EE3R9J	3.9 ohm	
R809	VRD-ST2EE472J	4.7K ohm	
△R810	VRG-ST2EG4R7J	4.7 ohm, 1/4W, ±5%, Fusible	AB
R811	VRD-ST2EE331J	330 ohm	AA
R832	VRD-ST2EE102J	1K ohm	
R833	VRD-ST2EE474J	470K ohm	
R834	VRD-ST2EE120J	12 ohm	
R835	VRD-ST2EE472J	4.7K ohm	
R836	VRD-ST2EE102J	1K ohm	
R837	VRD-ST2EE124J	120K ohm	
R851	VRD-ST2EE271J	270 ohm	
R874	VRD-ST2EE271J	270 ohm	
R875	VRD-ST2EE103J	10K ohm	
R901, 902, R903, 904, R905	VRD-ST2EE331J	330 ohm	
R906	VRD-ST2EE821J	820 ohm	
R907	VRD-ST2EE681J	680 ohm	
R908	VRD-ST2EE682J	6.8K ohm	
R909	VRD-ST2EE272J	2.7K ohm	

MECHANICAL PARTS

REF. NO.	PART NO.	DESCRIPTION	CODE
001	LANGF0575AFZZ	Bracket, Flywheel	AE
002	LANGG0078AFZZ	Bracket, Sub Chassis Guide	AC
003	LANGK0249AFZZ	Bracket, Motor	AC
004	LANGT0978AFZZ	Bracket, Head Base	AB
005	LBSHZ0072AFZZ	Cushion, Motor	AB
006	LCHSM0360AFZZ	Main Chassis	
007	LCHSM0361AFZZ	Second Chassis	
008	LCHSS0159AFZZ	Sub Chassis	
009	LHLDW3056AFZZ	Wire Holder	AA
010	LX-BZ0219AFFD	Screw, Motor	AA
011	MCAMP0054AFZZ	Cam Pause	AB
012	MLEVF1120AFZZ	Lever, P.A.D.	AD
013	MLEVF1173AFZZ	Lever, Record Switch	AB
014	MLEVP0215AFZZ	Lever, Cassette Lock	AB
015	MLEVP0216AFZZ	Lever, Record	AB
016	MLEVP0217AFZZ	Lever, Play	AB
017	MLEVP0218AFZZ	Lever, Rewind	AB
018	MLEVP0219AFZZ	Lever, Fast-forward	AC
019	MLEVP0220AFZZ	Lever, Pause	AB
020	MLEVP0221AFZZ	Lever, P.A.D. Lock	AB
021	MLEVP0222AFZZ	Lever, Auxiliary P.A.D. Lock	AB

PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	CODE
022	MLEVP0223AFZZ	Lever, Start	AB
023	MLEVP0224AFZZ	Lever, Eject Prevention	AB
024	MLEVP0225AFZZ	Lever, Record Prevention	AB
025	MLEVP0226AFZZ	Lever, Lock Release	AB
026	MLEVP0227AFZZ	Lever, Brake Release	AB
027	MLEVP0228AFZZ	Lever, APSS Switch	AB
028	MLEVP0229AFZZ	Lever, Fast-forward/Rewind Prevention	AB
029	MLEVP0230AFZZ	Lever, Record Sensor	AB
030	MLEVP0231AFZZ	Lever, Sub Chassis Lock	AB
031	MLEVP0232AFZZ	Lever, Play Release	AB
032	MLEVP0233AFZZ	Lever, Brake	AB
033	MLEVP0234AFZZ	Lever, Auto Stop Killer	AB
034	MLEVP0235AFZZ	Lever, Sensor	AB
035	MLEVP0236AFZZ	Lever, Erase Protection	AB
036	MLEVP0237AFZZ	Lever, Record Interlocking	AD
037	MLEVP0239AFZZ	Lever, Thrust	AC
038	NBLTH0076AFZZ	Belt, Flywheel Drive	AC
039	NBLTK0184AFZZ	Belt, Play	AB
040	NDAIR0150AFSA	Turntable, Take-up	AG
041	NDAIR0151AFSA	Turntable, Supply	AE
042	NFLYC0090AFZZ	Flywheel	AP
043	NGERH0066AFZZ	Gear, P.A.D.	AB
044	NGERH0067AFZZ	Gear, Play	AE
045	NGERP0051AFZZ	Gear, Play Drive	AB
046	NIDR-0073AFZZ	Arm, Play	AD
047	NIDR-0074AFZZ	Idler, Rewind	AB
048	NPLYR0076AFZZ	Pulley	AB
049	NROLV0017AFZZ	Roller, Fast-forward	AF
050	NROLX0014AFZZ	Roller, Rewind	AF
051	NROLY0037AFZZ	Pinch Roller	AE
052	NSFTN0008AFFW	Shaft, Pulley	AB
053	PGUMR0052AFZZ	Cushion, P.A.D. Lever	AB
054	RHEDA0083AFZZ	Erase Head	AM
055	RHEDH0096AFZZ	Record/Playback Head	AR
056	RMOTV0096AFZZ	Motor	AN
SOL1	RPLU-0141AFZZ	Solenoid	AK
057	MLEVP0269AFZZ	Lever, Record Interlocking	AC
058	JBOTN0078AFZZ	Button Block Assembly	AR
058-1	LANGK0257AFZZ	Bracket, Button Block	AD
058-2	MLEVP0240AFZZ	Lever, Button Lock (Main)	AB
058-3	MLEVP0241AFZZ	Lever, Button Lock (Sub)	AB
058-4	MLEVP0256AFZZ	Lever, Pause Button	AD
058-5	MLEVP0257AFZZ	Lever, Fast-forward Button	AD
058-6	MLEVP0258AFZZ	Lever, Rewind Button	AD
058-7	MLEVP0259AFZZ	Lever, Stop Button	AD
058-8	MLEVP0260AFZZ	Lever, Play Button	AD
058-9	MLEVP0261AFZZ	Lever, Record Button	AD
058-10	MLEVP0262AFZZ	Lever, Eject Button	AD
058-11	MSPRP0260AFFW	Spring, Button	AA
•058-12	NSFTT0144AFFD	Shaft, Button Lever	AB
059	LPINZ0051AFZZ	Pin, Pause Lever	AA
060	LX-HZ0078AFZZ	Screw, 2.6mm Dia x t12mm	AA
061	LX-HZ0080AFZZ	Screw, 3mm Dia x t25mm	AA
062	LX-HZ0081AFZZ	Screw, 3mm Dia x t30mm	AA
063	LX-HZ0077AFZZ	Screw, 2.6mm Dia x t10mm	AA
064	LX-HZ0056AFZD	Screw, 3mm Dia x t10mm	AA
065	LX-HZ0079AFZZ	Screw, Record Interlocking	AA
066	LSTWC2001AFZZ	Stop Ring, 2mm Dia	AA
067	LSTWC4004AFZZ	Stop Ring, 4mm Dia	AA
068	MSPRC0229AFFJ	Spring, Pause Lever Pin	AB
069	MSPRC0230AFFJ	Spring, Head Azimuth	AB
070	MSPRD0311AFFJ	Spring, Over Stroke	AB
071	MSPRD0312AFFJ	Spring, P.A.D. Lock Lever	AB
072	MSPRD0335AFFJ	Spring, Sub Chassis Lock Lever	AB
073	MSPRD0314AFFJ	Spring, Pinch Roller	AB
074	MSPRD0315AFFJ	Spirng, Record Sensor Lever	AB
075	MSPRD0316AFFJ	Spring, Fast-forward/Rewind Release	AB
076	MSPRD0317AFFJ	Spring, Pinch Roller Return	AB
077	MSPRD0318AFFJ	Spring, Pause Cam/P.A.D. Gear	AB
078	MSPRP0251AFFJ	Spring, (Plate type), Sub Chassis Retainer	AB
079	MSPRP0252AFFJ	Spring, Cassette Press	AB
080	MSPRT0739AFFJ	Spring, Record Prevention Lever	AB
081	MSPRT0740AFFJ	Spring, Auto Stop Killer	AB
082	MSPRT0741AFFJ	Spring Brake Lever/Release Lever	AB
083	MSPRC0248AFFJ	Spring, Sensor Lever	AB
084	MSPRT0743AFFJ	Spring, Lock Release Lever	AB
085	MSPRT0744AFFJ	Spring, Cassette Lock Lever/Play Lever	AB
086	MSPRT0745AFFJ	Spring, Pause Lever	AB
087	MSPRT0746AFFJ	Spring, Play Lever	AB
088	MSPRT0747AFFJ	Spring, Sub Shassis	AB
089	MSPRT0755AFFJ	Spring, Record Switch	AB
090	NBALS0006AGFJ	Steel Ball	AA
091	QCNW-0964AFZZ	Terminal Lug With Lead	AC
092	LX-WZ5020AGZZ	Washer, 1.7mm Dia	AA
093	LX-WZ5018AGZZ	Washer, 2.1mm Dia	AA
094	LX-WZ9053AFZZ	Washer, Oil Cut	AA
095•	LX-WZ9063AFZZ	Washer, 1.5mm Dia	AA
096	LX-WZ9064AFZZ	Wahser, 2mm Dia	AA
097	LX-WZ0014AGFK	Lock Washer, 2.6mm Dia	AA
098	LANGQ834AFFW	Bracket, Pause Switch	AD
099	LSLVM0113AFFW	Sleeve, Sensor	AC
100	MSPRC0231AFFJ	Spring, APSS Solenoid	AB
101	MSPRD0349AFFJ	Spring, P.A.D. Gear	AB
103	PSHEM0050AFZZ	Backplate	AA

MISCELLANEOUS PARTS

REF. NO.	PART NO.	DESCRIPTION	CODE
201	GCAB-1075AFSA	Front Cabinet Assembly	BB
△201-1	GCABA1586AFSA	Cabinet, Front	BA
•201-2	HPNLD1202AFSA	Window, Dial Plate	AD
△202	GCABB1586AFSA	Cabinet, Rear	AX
203	GCOVA1246AFSA	Cover, Mechanism Button	AH
204	GCOVH1180AFSA	Cover, AC Power Supply Socket	AB
205	GFTAB1116AFSD	Lid, Battery Compartment	AD
206	GFTAC1165AFSA	Cassette Compartment	AH
207	GFTAC1147AFSA	Plate, Transparent, Cassette Compartment	AG
208	GNETC1052AFSA	Net, Tweeter	AH
209	HBDGB3062AFSA	Badge, SHARP	AE
210	HDECB0143AFSA	Decoration Plate, Cassette Illumination	AD
211	HINDM1463AFSA	Panel, LCD, Indicator	AG
△212	HINDP0283AFSA	Label, Specifications (GF-9797H)	AC
	HINDP0297AFSA	Label, Specifications (For Helip)	
	HINDP0322AFSA	Label, Specifications (GF-9797E)	
213	HINDP0285AFSA	Caution Label, Battery	AB
214	GNETC1051AFSA	Net, Speaker	AQ
215	JHNDG1074AFSA	Handle	AQ

PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	CODE
216	JKNBK0234AFSA	Knob, Volume/Balance/Bass/Treble Control	AE
217	JKNBK0244AFSA	Knob, Record Level Control	AE
218	JKNBM0385AFSA	Button, Record	AD
219	JKNBM0386AFSA	Button, Play	AE
220	JKN3M0387AFSA	Button, Rewind	AE
221	JKNBM0388AFSA	Button, Fast-Forward	AE
222	JKNBM0389AFSA	Button, Eject	AE
223	JKNBM0390AFSA	Button, Stop	AE
224	JKNBM0391AFSA	Button, Pause	AE
225	JKNBZ0201AFSA	Button, Tape Counter	AD
226	JKNBZ0210AFSA	Button, Assembly, Microprocessor	AP
227	JKNBZ0211AFSA	Button Assembly, Silver, Red x 1 Color	AN
228	JKNBZ0211AFSB	Button Assembly, Silver Color	AN
229	KCOUB0106AFZZ	Tape Counter	AK
230	LANGA0070AFFW	Bracket, Cassette Compartment Retaining	AA
231	LANGK0261AFFW	Bracket, Push Button	AB
232	LANGQ0810AFFW	Bracket, Connecting	AB
233	LANGT1009AFZZ	Bracket, Air Damper	AB
234	LANGZ0086AFFW	Bracket, LCD P.W.B.	AF
235	LHLDF1249AFZZ	Frame	AQ
236	LHLDL1052AFZZ	Holder, Handle	AC
237	LHLDQ1051AFZZ	Holder Assembly, Mechanism Button (Record/Play/Rewind/Fast-forward)	AF
238	LHLDQ1053AFZZ	Holder Assembly, Mechanism Button (Stop/Eject/Pause)	AC
239	LHLDS1056AFZZ	Spacer, Control Knob	AC
240	LHLDW1068AFZZ	Nylon Band, 100mm	AA
241	LHLDW1075AFZZ	Nylon Band, 60mm	AA
243	LHLDW9003CEZZ	Wire Holder, 45mm	AA
244	LHLDX1053AFSA	Plate, Cassette Compartment	AF
245	LHLDZ1134AFZZ	Holder, LCD	AE
246	LHLDZ1135AFZZ	Holder, LED	AB
247	LHLDZ1144AFZZ	Holder, Mechanism Button	AE
248	LHLDZ9067AFZZ	Plate, Button Holder	
260	LX-BZ0322AFFF	Screw, AC Power Supply Socket Cover Retaining	AA
261	LX-CZ0002AFZZ	Screw, 4mm Dia x 70mm, Cabinet Retaining	AB
263	MLIFP0003AFZZ	Damper, Cassette Compartment	AD
264	MSPRC0175AFFN	Spring, Battery Terminal	AD
265	MSPRC0176AFFN	Spring, Battery Terminal	AB
266	MSPRC0188AFFJ	Spring, Battery Terminal	AB
267	MSPRC0189AFFJ	Spring, Tape Counter Button	AA
269	MSPRC0239AFFJ	Spring, Mechanism Button	AA
272	MSPRD0356AFFW	Spring, Cassette Holder	AB
273	MSPRP0227AFFJ	Spring, Plate type, Cassette Holder	AA
274	MSPRP0272AFFW	Spring, Push Button	AC
275	PCUSU0250AFZZ	Cushion, Cabinet	
276	NBLTK0188AFZZ	Belt, Tape Counter Drive	AB
277	PCOVZ1055AF00	Cover, Battery	AC
278	PCUSS0138AF00	Cushion, LCD	AA
279	PCUSU0092AG00	Cusion, Battery Compartment	AA
280	PCUSG0113AF00	Cushion, LED P.W.B.	AA
281	PCUSU0249AFZZ	Cushion, Button Block	
282	PFILZ0142CHZZ	Filter, LCD	AH
283	PFLT-0127AF00	Felt, Battery Compartment	AA
284	PFLT-0339AF00	Felt, Cassette Compartment Plate Spring	AA
285	PFLT-0451AF00	Felt LCD	AA
286	PFLT-0452AF00	Felt, Microprocessor Button	AA
287	PRDAR0251AFZZ	Heat Sink	AH
288	PREFL0080AFZZ	Reflection Plate, LCD	AB
289	PREFL0081AFSA	Illumination Plate, LCD	AH
291	PSLDM3208AFZZ	Shield, Plate, Tuner	AC
292	PSLDM7134AFZZ	Shield, Paper	AC
293	PSPAV0061AF00	Spacer, LCD	AB
294	PTPEC0005AG00	Ribbon, Battery Compartment	
△	QACCK0050AFZZ	Mains Lead	AL
△	QACCK0051AF00	Mains Lead (for Helip)	AL
297	QANTR0114AFZZ	Telescopic Rod Antenna	AM
CNP301-A	QCNCM0902AGZZ	Plug, 9 Pin	AC
CNP7, 403, CNP852	QCNCM095BAFZZ	Plug, 2 Pin	AB
CNP1	QCNCM131BAFZZ	Plug, 2 Pin	AC
CNP803	QCNCM132FAFZZ	Plug, 6 Pin	AD
CNP801	QCNCM134HAFZZ	Plug, 8 Pin	AD
CNP8	QCNCM214CAFZZ	Plug, 3 Pin (Test point)	AC
CNP401	QCNCM233DAFZZ	Plug, 4 Pin	AB
CNP4	QCNCM398BAFZZ	Plug, 2 Pin	AD
CNP551	QCNCM423HAFZZ	Plug, 8 Pin	AA
CNP552	QCNCM431BAFZZ	Plug, 2 Pin	AA
CNP301-B	QCNCM434CAFZZ	Plug, 3 Pin	AA
CNP851	QCNCM436CAFZZ	Plug, 3 Pin	AA
CNP601	QCNCM437DAFZZ	Plug, 4 Pin	AB
CNP802	QCNCM462BAFZZ	Plug, 2 Pin	AA
CNP501	QCNCM466FAFZZ	Plug, 6 Pin	AB
CNP6	QCNCM500FAFZZ	Plug, 6 Pin	AB
CNP402	QCNCM502HAFZZ	Plug, 8 Pin	AC
298	QCNTF0008AFZZ	Rubber, Conector, LCD	AG
299	QCNTM0002AFZZ	Rubber, Contact, Switch	AK
CNS552	QCNW-0980AFZZ	Socket, 2 Pin with Leads	AE
CNS501	QCNW-1024AFZZ	Socket, 6 Pin with Leads	AH
CNS803	QCNW-1131AFZZ	Socket, 6 Pin with Leads	AG
CNS1, 4, CNS852	QCNW-1132AFZZ	Socket, 2 Pin with Leads Assembly	AF
CNS401, 403, CNS601, 801	QCNW-1133AFZZ	Socket, with Leads Assembly CNS401: 4 Pin CNS403: 2 Pin CNS601: 4 Pin CNS801: 8 Pin	AQ
CNS301A, B	QCNW-1134AFZZ	Socket, with Leads Assembly CNS301A: 9 Pin CNS301B: 3 Pin	AH
CNS551, 851, CNS802	QCNW-1135AFZZ	Socket, with Leads CNS551: 8 Pin CNS851: 3 Pin CNS802: 2 Pin	
JL501, 502, JL603, 604	QCNW-1136AFZZ	Jumper, Leads Assembly JL501: 4 Pin 100mm JL502: 4 Pin 100mm JL603: 4 Pin 350mm JL604: 4 Pin 200 mm	AD
JL602, 605, JL901	QCNW-1137AFZZ	Jumper, Leads Assembly JL602: 9 Pin JL605: 6 Pin JL901: 10 Pin	AG
JL1A, B	QCNW-1138AFZZ	Jumper, Leads Assembly JL1A: 6 Pin, JL1B: 4 Pin	AH
CNS402	QCNW-1139AFZZ	Socket, with Leads 8 Pin	AE

PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	CODE
CNS6	QCNW-1150AFZZ	Socket, with Leads 6 Pin	AE
CNS7	QCNW-1185AFZZ	Socket, with Leads 2 Pin	AC
⚠F851	QFS-C162CAGNI	Fuse, T1.6A-250V	AE
300	QFSHD2051AFZZ	Holder, Fuse	AA
302	QHWS-3001AGFN	Lug	AA
J701, 702, J703	QJAKF0058AFZZ	Sockets Assembly J701: Record Player Input (R-ch) J702: Record Player Input (L-ch) J703: Earthing Terminal	AF
SO501, J501, (SW503), J502, (SW504), J505	QJAKZ0094AFZZ	Sockets Assembly SO501: DIN Socket J501: EXT. Microphone (R-ch) J502: EXT. Microphone (L-ch) J505: Remote	AL
J801, 802, J803, 804	QJAKZ0110AFZZ	Sockets Assembly J801: Mixing Microphone J802: Headphones J803: EXT. Speaker (R-ch) J804: EXT. Speaker (L-ch)	AL
303	QLUGP0109CEFW	Lug Terminal, 16.5mm	AA
304	QLUGP0111CEFW	Lug Terminal, 13mm	AA
305	QLUGP9052AFZZ	Lug Terminal, 17mm	AA
SO851, ⚠(SW851), SO852	QSOCE0563AFZZ	Socket, AC Power Supply with AC/DC Switch (SW851) and EXT. DC Power Supply Socket (SO852)	AH
SW506	WSW-F0136AFZZ	Switch, Pause	AD
SW507	QSW-F0137AFZZ	Switch, Muting	AE
SW509	QSW-F0148AFZZ	Switch, Main (Play)	AE
SW508	QSW-F0157AFZZ	Switch, APSS	AD
SW601, 602, SW603, 604, SW605	QSW-P0311AFZZ	Switch, Tape Selector/Dolby NR/Function/Power	AR
SW1, 2, SW3, 4, SW5	QSW-P0312AFZZ	Switch, Tuner Mode/LW/MW/FM/Radio Sensitivity	AQ
SW871	QSW-P0316AFZZ	Switch, LCD Illumination Light	AE
SW502	QSW-S0267AFZZ	Switch, Beat Cancelling	AD
SW501 (A ~ N)	QSW-S0324AFZZ	Switch, Record/Playback	AH
309	QTANB0158AFFN	Battery Terminal, UM/SUM-1 ⊕ Side	AB
310	QTANB9107AFFN	Battery Terminal, UM/SUM-3 ⊕ Side	AC
311	QTANN0254AFZZ	Terminal, External FM Antenna	AF
312	RMICC0076AFZZ	Built-in Microphone with Rubber	AF
313	RTUNV0068AFZZ	LW/MW Tuner Unit	BE
314	RTUNV0070AFZZ	FM Tuner Unit	AY
315	RV-LX0004AFZZ	LCD (Multi Display)	AY
SP1, 2	VSP00HNTB224A	Speaker, Tweeter, 3cm	AH
SP3, 4	VSP0016PB51SA	Speaker, Woofer, 16cm	AU
317	LSTWC3002AFZZ	Stop Ring, 3mm Dia.	AA
318	PSPAG0079AFZZ	Spacer, LCD	AA
	SPAKA0750AFZZ	Cushion, Packing Add. (Left)	AF
	SPAKA0751AFZZ	Cushion, Packing Add. (Right)	AF
	SPAKC1700AFZZ	Packing Case (GF-9797H)	AN
	SPAKC1723AFZZ	Packing Case (for Helip)	AN
	SPAKC1752AFZZ	Packing Case (GF-9797E)	AN
	SSAKH0024AGZZ	Polyethylene Bag	AA
	SSAKH0087AGZZ	Polyethylene Bag, Unit	AB
	TCAUA0178AFZZ	Caution Label, Arabic, AC Mains Lead	AA
	TGANG1054AFZZ	Warranty Card, For Users in SEEG-DV	AA
	TINSZ0275AFZZ	Operation Manual, Black Color	AP
	TINSZ0276AFZZ	Operation Manual, Blue Color	AV
	TINSE0729AFZZ	Operation Manual, (GF-9797E)	
	TLABS0079AFZZ	Label, Funk-	AA
	TLABS0080AFZZ	Label, SEMKO	AA
	TLABS0081AFZZ	Label, NEMKO	AA
	TLABS0082AFZZ	Label, DEMKO	AA
	TLABS0083AFZZ	Label, SEV	AA
	TLABT0053AFZZ	Label, License	AA
	TLABT0055AFZZ	Label, Dolby Caution	AA
	TLABZ0118AFZZ	Label, Indication: Free of Tax	AB
	TLABZ0187AFZZ	Label, POP	AB
	TLABZ0196AFZZ	Label, POP (GF-9797H)	
	TLABZ0204AFZZ	Label, POP (GF-9797E)	
	TMAPC0753AFZZ	Schematic Diagram	
	TTAGH0171AFZZ	Tag	
	UBATU0008AGZZ	Battery UM/SUM-3	AC
	UBATU0009AGZZ	Battery UM/SUM-1	AC
	QCNW-0488AFZZ	DIN Type Connecting Cord	AQ

P.W.B. ASSEMBLY

(not replacement item)

PART NO.	DESCRIPTION	CODE
DUNTL0139AF03 (Combined Assembly)	Audio Circuit P.W.B.	–
DUNTM0065AF02 (Combined Assembly)	Amp. Circuit P.W.B.	–
DUNTR0163AF03 (Combined Assembly)	Tuner Circuit P.W.B.	–
DUNTX0035AF01 (Combined Assembly)	Microprocessor Circuit P.W.B.	–

DIFFERENCE BETWEEN GF-9797H AND GF-9797HB

REF. NO.	GF-9797H (Front Panel: Silver)		GF-9797HB (Front Panel: Brown)		DESCRIPTION
	PARTS NO.	CODE	PARTS NO.	CODE	
201	GCAB-1075AFSA	BB	GCAB-1075AFSB		Front Cabinet Assembly
⚠201-1	GCABA1586AFSA	BA	GCABA1586AFSB		Cabinet, Front
⚠202	GCABB1586AFSA	AX	GCABB1586AFSB		Cabinet, Rear
203	GCOVA1246AFSA	AH	GCOVA1246AFSB		Cover Mechanism Button
204	GCOVH1180AFSA	AB	GCOVH1180AFSB		Cover, AC Power Supply Socket
205	GFTAB1116AFSD	AD	GFTAB1116AFSB	AD	Lid, Battery Compartment
206	GFTAC1165AFSA	AH	GFTAC1166AFSA		Cassette Compartment
⚠212	HINDP0283AFSA HINDP0297AFSA	AC	HINDP0328AFSA HINDP0329AFSA		Label, Specifications Label, Specifications (for Helip)
214	GNETC1051AFSA	AQ	GNETC1051AFSB		Net, Speaker
215	JHNDG1074AFSA	AQ	JHNDG1074AFSC	AS	Handle
244	LHLDX1053AFSA	AF	LHLDX1053AFSC	AD	Plate, Cassette Compartment
282	PFILZ0142CHZZ	AH	PFILZ0164CHZZ		Filter, LCD
	SPAKC1700AFZZ	AN	SPAKC1776AFZZ		Packing Case
	SPAKC1723AFZZ	AN	SPAKC1777AFZZ		Packing Case (for Helip)

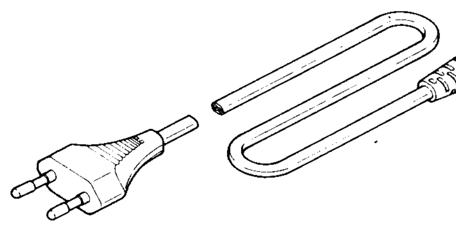
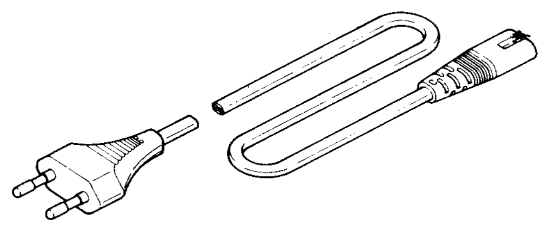
QACCK0051AF00 (Black)	QACCK0050AFZZ (Grey)
	

TABLE 1 AC SUPPLY LEADS

A8104-3055NK
Printed in Japan